



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243-1535

November 5, 2008

Mr. William L. Penny
Stites & Harbison, PLLC
Fifth Third Center
424 Church Street Suite 1800
Nashville, TN 37219-2376

Re: Revised Comprehensive Groundwater Corrective Action Plan, Egyptian Lacquer
Manufacturing Company, Franklin, Tennessee

Dear Mr. Penny,

The Tennessee Department of Environment and Conservation (TDEC) has reviewed the "Revised Groundwater Corrective Action Plan Addressing The Solvent Release From The Egyptian Lacquer Manufacturing Company, Franklin, Tennessee", (CAP), submitted by Egyptian Lacquer to TDEC for review and approval on June 23, 2008.

To allow for public participation, TDEC held a public meeting in Franklin, Tennessee on August 7, 2008 to inform the public of the scope of the proposed Revised CAP, and to request comments on the CAP. The comment period for the CAP ended on August 22, 2008.

Attached is a status report that outlines the interim measures to be taken by ELMCO moving forward

Should you have any questions concerning this matter, please contact me at 615-532-0780.

Sincerely,

Mike Apple (AM)

Mike Apple, Director
Division of Solid Waste Management

Cc: Mr. Kerry Mattox, Egyptian Lacquer
Mr. Dwight Hinch, TriAd Environmental
Mr. Paul Sloan, Deputy Commissioner, TDEC
Mr. Chuck Head, TDEC
Ms. Brenda Apple, TDEC
Ms. Ashley A. Holt, TDEC

ELMCO Status Report – November 2008

Egyptian Manufacturing Company
Remedial Action
Status Report
November 2008

Introduction

In January 2007, solvents, primarily acetone and toluene, were discovered in Liberty Creek and in discharges from seeps into the Harpeth River in Franklin, TN. The TN Department of Environment and Conservation (TDEC) began an environmental investigation to determine the source of the solvents. The investigation lead to the discovery of a leak in the underground piping system for above ground storage tanks located at the Egyptian Lacquer Manufacturing Company, Inc., 113 Fort Granger Drive in Franklin, TN.

Since identifying the source of the solvents entering Liberty Creek & the Harpeth River, the Division of Solid Waste Management (SWM) has worked with ELMCO to investigate the extent of solvent contamination in soil and ground water in the neighborhood around ELMCO. The primary solvents released from the underground piping release are toluene and acetone. ELMCO disconnected and removed the underground piping between the above ground storage tank area and its manufacturing building. ELMCO also emptied and removed the above ground storage tanks at its facility. Currently, all solvents used by ELMCO are stored in small containers inside the manufacturing building.

Release Impacts & Interim Measures to Date

The solvents that leaked from the underground piping at ELMCO, moved downward through the soil into the ground water below the ELMCO facility. Upon reaching the bedrock below the facility the solvents migrated into Liberty Creek and the Harpeth River. Toluene entering Liberty Creek produced solvent odors near Liberty Creek and the Daniels Drive area. Toluene was discovered floating on the surface of Liberty Creek. Acetone and toluene continues to enter the Harpeth River via seeps discharging ground water into the Harpeth River at four seeps along the Harpeth between ELMCO and the confluence with Liberty Creek. The same contaminants also continue to discharge at one seep along Liberty Creek.

TDEC and ELMCO have and continue to monitor the levels of solvents in Liberty Creek and the Harpeth River. To date the levels of toluene and acetone measured in the Harpeth River have not impacted the Harpeth River for recreation use and have not presented a threat to fish and aquatic life. The amount of toluene initially discharging into Liberty Creek was a threat to fish and aquatic life and could pose a risk to human health if they had prolonged contact with the water in Liberty Creek. In an effort to prevent the migration of solvent from ELMCO into Liberty Creek, ELMCO installed an interceptor trench to collect the solvent before discharge into Liberty Creek. Solvent collected in the trench was/is removed and properly disposed. The interceptor trench continues to be operated in order to collect floating solvent that would otherwise enter Liberty Creek.

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ELMCO has conducted air monitoring to determine the levels of toluene and acetone in the ambient air in the Daniels Drive neighborhood and to determine any potential risk (chronic and acute) to human health presented by the vapors to local residents or to students and faculty at the BGA Lower School. The air monitoring results were reviewed by Environmental Epidemiologists from the TN Department of Health and professional industrial hygienists. From this review, it was determined that the level of toluene and/or acetone vapors measured in the ambient air near ELMCO did not present either an acute or chronic health risk to local residents or to students and faculty at the BGA Lower School. As a precautionary measure, ELMCO has worked with the BGA Lower School to install equipment to monitor solvent vapor levels inside the BGA Lower School and on the Lower School Playground. The continuous monitoring system would sound an alarm if toluene and/or acetone vapor levels ever present a human health concern. BGA has amended their school safety plan to provide for safe exit of children and the faculty from the school should the monitoring system detect vapor levels above action limit.

ELMCO sampled the ambient air and the air in the basements and crawl spaces of homes along Daniels Drive. The air monitoring results demonstrated there were not levels of toluene or acetone at any monitoring point that presented an acute health hazard to local residents. As a precautionary measure, ELMCO continues to monitor the levels of toluene and acetone in the ambient air near residences on Daniels Drive.

Toluene and acetone are present in the soil below the tank pad at the rear of the ELMCO manufacturing plant. ELMCO initially treated the soil in this area with a biological agent to remove the organic solvents. ELMCO sampled the soil after the biological agents were added to determine the effectiveness of this treatment. Sampling results revealed the biological treatment was largely ineffective. Currently ELMCO is treating the soil in this area using a mobile soil vapor extraction system to remove toluene and acetone from the soil. As of this date, approximately 250 gallons of solvent have been removed from the subsurface using the soil vapor extraction system. This effort will continue until a permanent solvent extraction clean-up strategy is defined and implemented.

ELMCO has installed nine ground water monitoring wells and soil borings around the facility and in the local neighborhood. Samples are regularly collected and analyzed to help determine the extent of solvent contamination in soil and ground water. At this time, the full extent of soil and ground water contamination has not been determined.

Interim Measures at ELMCO Moving Forward

TDEC has reviewed the Corrective Action Plan submitted by ELMCO for the release at their facility. The CAP review is complete and TDEC has reviewed all public comments received regarding the investigation and clean-up of this release. As a part of the public comment process; attached are copies of the comments received and TDECs response to each comment.

ELMCO Status Report – November 2008

After review of the CAP and consideration of all comments, TDEC has determined that the following steps must be taken before selecting a final corrective action strategy for this site:

1. Additional soil and groundwater investigation – this will require the installation of additional soil borings and monitoring wells to better define the extent of solvent contamination in the soil and ground water in the vicinity of ELMCO;
2. Soil Gas Survey – ELMCO will use Geoprobe to drill into soil and then measure solvent vapors in the soil in the Daniels Drive area. The data obtained will be used to determine if there are solvent vapors in local soil that could adversely impact local human health. ELMCO will also use the information collected in the Geoprobe survey to determine the subsurface rock structure and its impact on the migration of solvents through soil and ground water
3. Trench Rehabilitation and Operation - The interceptor trench on Mark Driskill's property will be converted into a closed collection system designed to continue to intercept and collect solvent migrating from ELMCO to Liberty Creek. The trench will be completely filled, eliminating any safety hazards presented by an open trench. A conceptual plan for the system is attached.
4. Management of Soil from Trenches – The soil that was excavated from the ground and stored on-site during trench construction and operation has been sampled with results indicating that the soil does not have concentrations of acetone, toluene or any other contaminant(s) that present either an acute or chronic health hazard. A portion of the soil will be used to fill the trenches and the remaining soil will be contoured into the area in a manner acceptable to the property owner.
5. Dual Phase Soil Vapor Extraction System – ELMCO has agreed to install and have in operation a Dual Phase Vapor Extraction system by November 14, 2008. The system will be installed near the above ground storage tank concrete pad. This system will remove solvent vapors and liquid solvent from sub-surface soil and ground water and lower the amount of solvent migrating from ELMCO into Liberty Creek and the Harpeth River.
6. Harpeth River and Liberty Creek – TDEC will continue to quarterly monitor key points along the Harpeth River and Liberty Creek to determine if ELMCO on-site activities reduce the amount of solvent discharged into each stream. ELMCO shall continue to sample monthly and use the results to determine if the interim corrective action is working
7. Operation of Real Time Vapor Monitoring System at BGA – The BGA Lower School will continue to operate the Air Monitoring System at the BGA Lower School. Operation includes routine maintenance and instrument calibration. Should the alarm sound, faculty and students will follow the school evacuation plan.

The Department has attached, with this status report, information from its environmental contractor, Scientific Applications International Corporation (SAIC) that provides a summary and status update regarding the ELMCO project and a conceptual plans.

Final Corrective Action Strategy

Once the horizontal and vertical extent of solvent contamination in soil and ground water has sufficiently identified, ELMCO must make a proposal for completing remedial action at this site. This effort will be composed of two documents; (1) a Risk Assessment which determines the clean-up criteria for soil and ground water contamination and (2) a Corrective Action Plan that proposes the technologies and strategies the ELMCO will use to achieve the clean-up criteria as proposed in the Risk Assessment.

Risk Assessment – Once ELMCO has sufficiently defined the soil and ground water contamination plumes and has the necessary amount of ambient air data, ELMCO will submit a Risk Assessment to TDEC to proposing the appropriate clean-up criteria for toluene, acetone and any other constituent of concern(s) in soil and ground water. The risk assessment shall include toxicity and human health data for the primary environmental contaminants, the chemical properties of the contaminants, the porosity of local soils, the presence of subsurface vapor conduits such as water and wastewater lines, gas lines, etc.

Corrective Action Plan - Using the information from the Risk Assessment, the amount of solvent in soil and ground water, the physical characteristics of the soil and subsurface geology, ELMCO is required to submit a final corrective action strategy for remediation for this release. This document will describe the technology to be used for corrective action, how the technology will be installed at this site, the predicted length of the clean-up effort, plans for long term monitoring of local soil and ground water and any institutional controls required to reduce the risk of human exposure the contaminants from this release.

Conclusion

TDEC has required ELMCO, under an Administrative Order, to investigate and clean-up soil and ground water contamination caused by the release of solvents at the ELMCO facility. As requested, TDEC has provided the public with an opportunity to provide comments about the proposed corrective action for the ELMCO release. TDEC has received public comments and provided a response to each comment. TDEC has requested that ELMCO conduct interim corrective action measures to insure the impact of the ELMCO release to the environment does not increase and to insure that local public health and the environment are protected. TDEC has requested that ELMCO propose a Final Corrective Action Strategy that meets clean-up criteria for this site as determined in a Risk Assessment.

Should you have questions or comments about this site or the TDEC Response to Comments, please contact Ashley Holt at 615 532-0853 or via e-mail at Ashley.A.Holt@state.tn.us.



Science Applications International Corporation

TO: Ashley Holt

FROM: JJ Hollars

SUBJECT: Egyptian Lacquer Project Status Update

DATE: November 3, 2008

After a number of technical reviews, meetings and comment response preparation efforts, it seems appropriate to provide a brief summary and status update regarding the Egyptian Lacquer (ELMCO) project. SAIC's involvement with the ELMCO work began in late April with the design and installation of the stream crossing down gradient of the trench area. We were called in again in July of this year to provide technical input on the revised CAP and, in particular, a technical review of the Risk Assessment. These reviews also led to technical support during the public meeting in August and response to public comments. Furthermore, our teaming partners, EME and Viking, via this contract, have been used to 1) sample the existing soil pile, 2) cleanout the existing trench and 3) continue the short term removal actions. It is anticipated that our contract vehicle may also be used to design an option to close out the trenches in a manner that will permit other potential remedial alternatives and then to complete that closure.

It is our understanding that work at the ELMCO site is expected to proceed in a phased approach with each step wholly dependent upon the results and conclusions drawn from the previous step. This appears to be the most prudent and reasonable path going forward. As investigation at this site continues to move forward, TDEC, and ELMCO have both learned more about the nature of the impact and should be better able to respond accordingly. It may be counterproductive to assume a final remedial solution can be proposed and/or accepted at this time. Based on our current understanding, the most effective corrective action path for this site moving forward is as follows:

- 1) Design a plan for closing out the trenches that is acceptable to TDEC, ELMCO and the property owner;
- 2) Close out the trenches in the manner to which it is agreed;
- 3) Proceed with plans to conduct vapor phase extraction at the source area;
- 4) Conduct a soil gas survey along Daniels Drive, with additional investigation to follow if warranted;
- 5) Continue monitoring of the seeps along the Harpeth River and Liberty Creek
- 6) Continue with quarterly groundwater monitoring;
- 7) Continue real time air monitoring at the lower BGA campus; Rehabilitate the investigation area near the trenches with proper management of the excavated soils;
- 8) Installation of additional soil borings and monitoring wells as needed to better define the extent of the solvent contamination;

- 9) Submittal of Final Risk Assessment; and
- 10) Submittal of a Final Remedy .

We have enjoyed this opportunity to support TDEC with this obviously very important and interesting project. Though our current support may be lessening, please let us know if there are other ways we may support the department with this or any other projects.



28 Middleton Street • Nashville, Tennessee 37210
615.742.0875 • 615.742.0873 (facsimile)

Monday, November 3, 2008

Mr. Joe Sanders
Office General Counsel
Tennessee Department of Environment & Conservation
401 Church Street
Nashville, Tennessee 37243

Re: Liberty Creek/ELMCO
Franklin, Tennessee

Dear Mr. Sanders:

Environmental Management and Engineering, Inc. (EME) and Science Applications International Corporation (SAIC) are pleased to provide this letter that details the activities and intentions for the Egyptian Lacquer Manufacturing Company (ELMCO) remediation project along Liberty Creek in Franklin, Tennessee. As you are aware, field activities have been implemented at the Liberty Creek site in accordance with the approved TDEC work plan, dated July 29, 2008. Field activities began on October 20, 2008 and are near completion. This letter summarizes the activities completed to date and our recommendations for continual product removal.

- The approved work plan consisted of soil pile and interceptor trench sampling, trench clean out and aggressive pumping of the middle trench at the Liberty Creek/ELMCO release area;
- To gain access to the middle trench, the Southern trench was backfilled with soil from an existing berm;
- During the first day of field activities, the middle trench was cleaned out. Upon completion of the cleaning activities, free product was observed entering the middle trench. Absorbent booms were utilized to recovery the free product material. The recovery of the product diminished slightly throughout the week;
- Free product was only observed in the middle trench;
- On Friday October 24, 2008, the area encountered a large storm event. The project area received approximately three inches of rain within a 24-hour period. The trenches were relatively dry before this storm event;
- Pumping of the trenches resumed on October 27, 2008. Product continued to enter the middle trench. An estimated one gallon of free product was recovered from the trench each day;
- The trench was cleaned utilizing a track hoe and spraying down the bottom of the trench with water pumped from the northern trench. Upon completion of the cleaning, the middle trench measured approximately 32 feet long and 7 to 8 feet

across at the bottom. There is a ledge in the bedrock of the trench floor which results in the northern most twenty feet of the trench being approximately one foot shallower than the remainder of the trench. To measure water levels, a survey rod was positioned in the deepest portion of the trench;

- Product was observed entering the trench along the northeast corner when the water level was approximately 2.5 feet above the invert of the trench. Additional product was observed to enter the trench along the bottom ledge when the water level was further lowered via pumping.
- Larger slugs of product were recovered when the water level was pumped down below the ledge then allowing the water levels time to recharge. This activity was repeated on a daily basis to determine the amount of product recovery. Product recovery did not diminish during this procedure;
- To continue this recovery technique, we recommend the installation of a temporary recovery system. We also recommend that this system be installed as soon as possible to maintain the integrity of the trench which will be eliminate the need for additional trench cleaning;
- The recovery system will consist of lining the trench with a geotextile fabric material to minimize sediment movement. EME will verify that the geotextile material is compatible with toluene and acetone. Two 48" diameter corrugated metal pipes will be positioned in the trench in a vertical configuration. The bottom three to four feet of each pipe will be perforated with 2" diameter holes or vertical slots. One pipe will be position and custom cut to straddle the ledge. This position will allow maximum recovery of product entering the trench area. The second pipe will be located downgradient and will attempt to recover any residual material that moves pass the first recovery pipe.
- Large rip-rap material will be placed around the pipes and the bottom of the trench. Rip-rap material will be installed to cover the bottom five feet of the trench. This large rip-rap material will be utilized to maintain large interstitial spacing to promote maximum velocity of the free product material toward the pipes and minimize surface smearing of the product on the rocks;
- The system will allow the pipes to act as receiving units where the pressure will be reduced within the pipes. This configuration will cause the free product to seek the route of least resistant which is inside the pipes;
- To increase hydraulic pressure within the trench and promote product entry into the recovery pipes, the downgradient portion of the middle trench will be constructed with a impermeable barrier. This barrier will consist of a layer of 40 millimeter polyethylene plastic placed over the initial geotextile fabric followed by another layer of geotextile fabric to minimize damage;
- To test the system, the trench will remain open to the top of the rip-rap until recovery of product within the system is confirmed. Once the system is confirmed, an additional layer of geotextile will be placed over the rip-rap layer and the trench backfilled to grade with onsite soils. Soils will be compacted in 6-inch layers to minimize voids. Typical 48-inch manholes will be placed on top of

the pipes to aid with safety to onsite personnel and allow access for free product recovery;

- The northern trench will be utilized to receive pumped water from the middle trench during recovery times as performed during these field activities. This trench will eventually be backfilled in the same manner as the middle trench. The difference in this trench's construction will be an increased amount of rip-rap and a larger diameter CMP, possibly 60-inches or larger. The intention of this trench is to handle the hydraulic volume of water from the middle trench. A hard pipe system will be constructed to allow water pumped from the middle trench to be directly discharged into the large CMP; and
- Free product will be recovered using absorbent booms inside the vertical pipes. Pumping rates and recovery rates times will be adjusted as required to maximize inflow of free product.

We are approaching this project with a great deal of enthusiasm and confidence. We look forward to further assisting TDEC with this project. Should you have any questions or comments, please do not hesitate to contact us at 615.742.0875. Thanks again for the opportunity to be of service to TDEC on this important and interesting project.

Yours Very Truly,

ENVIRONMENTAL MANAGEMENT AND ENGINEERING, INC.

Doug C. Miller, PG PE
Senior Engineer

C. Todd Hughes, PG
Vice President

cc: file
Ronnie Bowers – TDEC
JJ. Hollars - SAIC



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GOENE

DRAWN BY:

**TDEC'S RESPONSE TO COMMENTS ON
THE REVISED CORRECTIVE ACTION PLAN FOR THE
EGYPTIAN LACQUER MANUFACTURING COMPANY**

November 3, 2008

1.

The first proposed Corrective Action Plan which was submitted on August 21, 2007 and found deficient by TDEC on November 20, 2007 had so many shortcomings that were to have been addressed in this second attempt and were not. This leads us to ask our first question, "Why was the June 1, 2007 Consent Order ignored the first time and what are the penalties for this second instance of disregard for TDEC's authority?"

ELMCO has complied with the June 1, 2007 Consent Order. ELMCO has worked cooperatively with TDEC to carry-out the investigation. At this time, TDEC has not made a decision regarding assessment of civil penalties for this release and subsequent investigation and remediation effort.

2.

We are 14 months past the Order and there is still no serious or approved plan for clean up. This company is clearly in violation of the State's Order and is continuing to pollute the Harpeth River and Liberty Creek with hazardous and carcinogenic chemicals every single day.

ELMCO is not in violation of the Order. The presence of solvent constituents in the Harpeth River and Liberty Creek resulted from an accidental release of solvent, not an intentional discharge. ELMCO acknowledges that the site investigation has not progressed as they anticipated. As new data has been generated, ELMCO has commented and TDEC concurs that it is premature to select a final remedy for the site, for this reason future investigative and remedial actions will be implemented at the site in a phased approach for the purpose of developing a more concise site conceptual model. Resources will be prioritized and corrective action will be driven by risk based decision making, which accurately and realistically reflect current and future land use scenarios and beneficial use of resources.

3.

At issue, primarily, is the undeniable fact that ELMCO has yet to determine the nature and extent of the contamination of the environment with hazardous chemicals that they have caused through the illegal release of chemicals that they allowed to leave their property. Until there is a complete and thorough delineation of the contamination off site an effective plan cannot be proposed to TDEC or be in compliance with TDEC's own Consent Agreement and Order dated June 1, 2007. By default and unspoken in the second proposed CAP, if there is no plan to clean up ELMCO-contaminated property off site, then there is a plan to leave the contamination in place. This is essentially proposing

monitored natural attenuation, (MNA) which is not acceptable per EPA guidelines as we covered in our first set of comments dated October 23, 2007. One key requirement for MNA is that the contamination plume be defined which has not been done here. MNA is also not appropriate in complex geologic conditions (such as karst or limestone bedrock) which we have here, when the contamination plume migrates off site, and only if the approach will be "protective of human health and the environment."

Delineation of the contamination is an ongoing process, the timeline of which is determined by the data generated with the installation of each new well. To further delineate the contaminant plume, ELMCO installed two additional groundwater monitoring wells that will be monitored on a quarterly basis. Additional groundwater monitoring wells will be installed as needed to adequately define the contaminant plume. Although monitored natural attenuation may be a component of the final remedy, it has not been proposed by ELMCO, nor is it appropriate as a stand alone remedial option for the site at this time. ELMCO has agreed to expand their efforts to additional corrective action strategies for soil and ground water contamination including other source removal actions and additional efforts at the trench through a series of interim corrective action measures to insure that a final remedy selection is protective of human health and the environment.

4. The fact that the contaminated plume migrates off site, under people's homes through the fissures in the karst bedrock into Liberty Creek and the Harpeth River, automatically signals that MNA would not be appropriate here. The location of the off site wells further demonstrates that there is not a serious plan for delineation of contamination because they are being sited where little or no contamination is likely to be found. Rather, wells need to be sited where contamination will likely be found and removed such as on individuals' property beyond the Driskill property or public property such as Fort Granger. The attorney for ELMCO stated in the Tennessean on August 19, 2008 when he was describing the two newest wells they have drilled, "We don't expect to find anything at those locations." This demonstrates the continued avoidance of finding and cleaning up ELMCO's contamination. As a part of the CAP, TDEC should require a dye study to be performed to determine the destinations of the ELMCO contaminants to help define the nature and extent of contamination.

The nature and extent of contamination has been sufficiently identified to direct near-term remedial efforts. An exclusively MNA approach was never presented, and it is fully expected that remedial activities onsite will not preclude additional activities. The additional monitoring wells were required by TDEC to better define the horizontal extent of contamination. The locations of the new wells were chosen to define the boundaries of the contaminant plume, and will be utilized only for groundwater monitoring, not remediation. The placement of these wells is in accordance with standard groundwater assessment procedures. A dye trace study would be redundant as we obviously know where the contamination entered the system and where the principal discharge point is located.

5. The second crucial issue that has yet to be addressed in the second proposed Corrective

Action Plan is that the tank farm is not the only source of contamination from ELMCO. This was not addressed in the first plan and further proof of the existence of contamination beyond the tank farm come to light since the first deficient plan was rejected. Other sources can no longer be ignored in the CAP. None of the soil borings before or after the BIOX treatment at the tank farm demonstrated any evidence of the presence of several of the VOCs that are used as raw materials by ELMCO that continue to be detected in the seeps in Liberty Creek and the Harpeth or in the well drilled on Daniels Drive. If the contamination was only from the tank farm why was there no benzene, n-propylbenzene, 1, 2, 3 trimethylbenzene, 1, 3, 5-trimethylbenzene, cis 1-2 dichloroethene, or methylene chloride at the farm and why do they continue to be detected in the creek and river and why were they found in the 2006 Phase II Environmental Assessment near the ELMCO building? We insist that the CAP include a complete investigation of all hazardous chemicals from all potential sources on the ELMCO property especially near and under the building, the drum storage area, and the underground storage tank area as was indicated in the Phase II Environmental study completed in 2006 by August Mack.

TDEC does not agree. Additional sampling is being conducted and lower method detection limits (MDLs) may identify other contaminants. High VOC concentrations for certain constituents can "mask" the presence of other constituents at lower concentrations. ELMCO has historically stored a number of different raw materials in the tank farm, and many of these materials are often associated with the primary constituents of concern (acetone and toluene). For example, benzene is often present in toluene as a by-product of the toluene manufacturing process. Detection limits for sample analysis may not be low enough to detect these small quantities, which may explain their absence in the soil samples and their presence in the water samples. As the concentrations of these other constituents reach regulatory action levels, appropriate investigation will be undertaken.

6. Additionally, a year and a half after ELMCO has taken responsibility for the off site contamination, they are still contaminating waters of the state every day and they have no deadline by which they must stop. They have not provided any timeline to TDEC for which they will be accountable if they do not meet their clean up goals. In fact, they have not set any clean up goals such as federal standards that will be met when they complete their clean up or benchmarks on the way to their final goals during the clean up. This does not meet the requirements of a Corrective Action Plan and therefore it cannot be accepted. Also, we would recommend modifications to the Consent Order and Agreement to establish specific timelines and numeric standards for the clean-up process such that both ELMCO and the public would have clear expectations of when the remediation process should be completed and what the final results are expected to be. Additionally we recommend, as we did in our comments to the first proposed corrective action plan that the order be modified to adhere to the specific requirements of a RCRA equivalent facility assessment and investigation, and RCRA corrective measures study and implementation.

In a report from Microbe Inotech Laboratores, the timeline given for cleanup of the toluene contamination was 9.8 months (assuming that no free product is present). This is merely an estimate, based on data that was available at the time. Although the microbial data is relevant and useful, recent data suggests that additional investigation is required at the site before a more accurate timeline can be established. ELMCO has proposed to redefine the requirements of the CAP to include interim corrective action measures as necessary to eliminate the source and to perform additional investigations before a final remedy is proposed. When all interim corrective measures and investigations have been completed, clean up goals can be established. ELMCO is in compliance with the existing Order and modifications to the Order are necessary. ELMCO's investigation conducted to date and their proposed phased approach for implementing additional corrective action measures are sufficient to address the site and protect the public. TDEC does not believe that a RCRA facility assessment is warranted.

7. As the second proposed plan stands now it does not adequately monitor the river or provide notice to the public of hazardous waste contamination. The public uses the Harpeth River in downtown Franklin for recreation including swimming, wading, and fishing and swimming for pets. Until ELMCO controls the seeps to levels below Maximum Contaminant Levels (MCLs), TDEC should require ELMCO to post signs warning the public of the hazardous chemical discharges. These chemicals are unhealthy and are sometimes flowing at levels hundreds of times MCL's. No studies have been done demonstrating that exposure or direct contact with multiple, hazardous and carcinogenic chemicals cumulatively are safe such as those that are entering the River at seep 2. Therefore, signage warning the public it might not be safe should be posted.

TDEC employs signage and stream postings when constituent concentrations exceed surface water regulatory guidelines, but none have been found. Groundwater MCLs, while a good point of reference are not indicative of surface water action levels.

8. The July seep sample for the Harpeth Seep 2, which is a public fishing location had benzene twice the MCL and toluene three hundred times the MCL plus acetone at one hundred and forty times the PRG as well as ethylbenzene, MEK, MIBK, n-Propylbenzene, 1,2, 4-Trimethylbenzene, 1,2,5-Trimethylbenzene, xylenes and trace amounts of 2-hexanone, isopropylbenzene, and methylene chloride. These lab results are based on findings from a split sample which ultimately determined that the laboratory that ELMCO/TriAd has been using is inaccurate and will no longer be used, which brings into question all of the lab results reported by TriAd to date. The above results were from the state's lab which has better reproducibility, sensitivity, and accuracy and lower detection limits than the lab that was used.

Seep samples are not representative of Harpeth River water quality. TDEC agrees that method detection limits (MDLS) are a concern with the data previously collected. However, the results reported are still valid because they were obtained using standard EPA analytical protocol by a qualified and certified commercial

laboratory. Additional data must be collected to confirm previous sampling results.

9. Also, with respect to the last Seep Monitoring Report dated August 13, 2008 submitted by TriAd to TDEC, on page 4, Mr. Hinch indicated that ELMCO performed the August sampling event during the first full week of the month and, "will report to TDEC immediately if results indicate any significant increases." We certainly hope that this does not mean that the report to the public will only occur if there are increases in seep concentrations and only if those increases are "significant", which was not defined in the letter. This is not acceptable. All data gathered is public information. We would like for the monthly seep reporting to continue with the added mass concentration calculations posted to the TDEC web site.

ELMCO is required to submit all seep and groundwater monitoring well results to TDEC, and that will not change. If any analytical results indicate significant variations, ELMCO is required to immediately notify TDEC. TDEC receives the seep analytical results monthly and the monitoring well analytical results quarterly. All the monitoring data is posted on the TDEC website (<http://www.state.tn.us/environment/swm/ppo/elmco.shtml>) and is available to the public in our files in the central office in Nashville, Tennessee, in the Division of Solid Waste Management.

10. These chemicals have continued to flow continuously into the Harpeth directly from Harpeth Seep 2 since at least their detection in January 2007 and almost continuously from Harpeth Seep 1 which is a few hundred yards downstream. The CAP gives the impression that the contamination is becoming less and this conclusion simply cannot be drawn for the Harpeth or Liberty Creek. As a matter of fact the concentrations are actually increasing if you look at the latest seep report in the context of the mass loadings. As Mark Quarles explains in great detail in his comments (p.14-15) with the mass loading discharges that have been calculated starting with TDEC's records in 2007, there is no reduction, but cyclic increases and decreases depending on ground water flow. This is consistent with EPA standards for measuring contamination in groundwater. Trend conclusions cannot be drawn based solely on concentrations in ground or surface water.

It is true that there are cyclic changes in surface water concentrations at the seeps and likewise in the groundwater samples. This is completely consistent with the current conceptual flow for the site that suggests that dissolved phase contamination flows along the bedrock soil interface and through open bedrock fractures into the groundwater, while free product toluene floats along the surface of the water table. ELMCO is currently conducting soil vapor extraction in the source area, and additional interim investigative and remedial actions will be implemented in a phased approach. A more consistent downward trend would be expected as new phases of interim corrective measures are implemented. Harpeth Seep 1 is not a reliable monitoring point because it is frequently dry or submerged.

11. Harpeth seep 2 adds to the contamination of Harpeth seep 1 which is downstream from

seep 2 and upstream from Liberty Creek. Harpeth seep 1 is not monitored and the downstream confluence of Liberty Creek which also adds its contaminant load to these two seeps is not monitored. The only sampling/monitoring done is a few miles downstream where the contamination is extremely diluted at the Franklin wastewater treatment plant so no conclusions about health and safety or contaminant levels can be drawn because the most contaminated area is not being monitored for ecological receptors or for humans. For long term effective monitoring of impacts of contamination on the river, monitoring should be set up monthly at the Franklin Road Bridge as well as at Harpeth Seep1.

ELMCO has amended the monthly seep sampling protocol to include a new sampling point that is located downstream of the confluence of Liberty Creek and the Harpeth River. This location was chosen in accordance with TDEC's Division of Water Pollution Control policy to insure adequate mixing.

12. In addition to not addressing the deficiency of defining the nature and extent of the contamination which was listed as one of the nine deficiencies in the November 20, 2007 Notice of Deficiency, ELMCO also still has not laid out a timeframe for cleanup, done a thorough feasibility study of remedial alternatives, or provided any contingency plans should its recommended course of action fail. For instance, the proposed remedy of using EcoVac systems did not include the requisite criteria of explaining; 1) long term reliability and effectiveness, 2) ability to reduce the toxicity, mobility or volume of the contamination, 3) short-term effectiveness, 4) implementability, or 5) cost. This was the proposed remedy and they did not include this information in the second proposed CAP. These are what HRWA finds to be the most important issues that have been inadequately addressed by the second proposed ELMCO Corrective Action Plan.

TDEC does not agree. Although an estimated timeline for cleanup of dissolved toluene (9.8 months) was provided in the revised CAP in the Microbe Inotech Laboratories report, until the site assessment is complete, any suggested timeline would be premature. ELMCO and TDEC have agreed that future onsite activities will proceed as interim actions until the site conceptual model is better defined and the source is better delineated. Once the site is better understood it is anticipated that a timeline can be established with more confidence.

13. Triad's claim that "significant reductions" have occurred in seep concentrations at both Liberty Creek and the Harpeth River should be rejected. A review of TDEC water sampling results from January 18, 2007 through June 14, 2008 and calculating mass discharges in pounds per day into Liberty Creek indicate that contaminated groundwater concentrations and mass loadings are cyclic, with the highest mass loadings occurring in January 2007, April 2007, September 2007, and again in March 2008. The mass loadings are the highest during the end of winter / beginning of spring and the end of the summer.

TDEC does not agree. As the graphs submitted by the commenter depict, the concentrations of contaminants in the seeps along Liberty Creek and the Harpeth River have declined significantly. We would anticipate that mass loading rates will

increase during the higher flow periods of the year, as both Liberty Creek and the Harpeth River are effluent streams that "gain" flow from groundwater discharge. During periods of low base flow conditions common in the dry summer months, the concentrations would be expected to increase.

14. Triad's claim that seep concentrations have significantly reduced should also be rejected because their August 13, 2008 seep sampling report for a July 1, 2008 seep sampling event determined that the concentrations in Main Seep at Liberty Creek were "significantly higher than those measured in recent monitoring events". Therefore, instead of improving as the CAP claims, the concentrations for acetone and toluene have actually increased according to Triad.

TDEC does not agree. Please see TDEC's response to comment #13.

15. Laboratory analytical results of samples split between Environmental Science Corporation (ESC, Triad's lab of choice for over a year), Test America, and TDEC's lab, indicate that ESC consistently under-reported concentrations when compared to the other labs. Therefore, both the accuracy and reliability of all historical monitoring data reported by ESC is questionable and should be rejected for making risk-based and final remedial conclusions.

TDEC does not agree. Historical laboratory data for this site is an issue. Not so much from the standpoint of under reporting concentrations, but more related to the poor method detection limits (MDLs). Since many of the analyses were conducted with MDLs above the corresponding regulatory action levels, data was "under reported" but not necessarily reported at lower concentration levels. ESC analytical results were obtained using accepted EPA laboratory methods and protocols; therefore, the data are still valid, but some of the MDLs were not within acceptable ranges due to the high concentrations of toluene and acetone which masked the presence of other contaminants at lower concentrations. It would be imprudent to reject all preexisting data, but it is obvious that more recent data with more appropriate MDLs will be more definitive.

16. Triad's claim that Liberty Creek is "acting to block any significant contamination flow "further to the west" should be rejected because of the concentrations reported in MW-4.

TDEC does not agree. The Federal Drinking Water Standard for toluene is 1,000 ppb. Since the installation of MW-4, the well has been sampled on three occasions, 2-21-08, 6-3-08 and 9-10-08. Toluene was detected at a concentration of 170 ppb on 2-21-08, 22 ppb on 6-3-08 and there were no detections of toluene or any other analyte on the 8260 B list on 9-10-08. These analytical results suggest that toluene in a dissolved phase has migrated over to the West side of the creek, but it also suggests that Liberty Creek is an effective hydrologic barrier for shallow flow and free product flow. Concentrations of toluene found at MW-4 may be related to dispersion effects (halo effect). Additionally, a soil sample collected at the top of bedrock during the drilling of MW-4 had no detectable concentrations of toluene or

any other volatile organic compound. The concentrations of contaminants in MW-4 are below applicable regulatory limits and will continue to be utilized as a compliance monitoring well to evaluate western migration.

17. Air rotary drilling likely missed discrete water bearing zones of the highest contamination during well drilling activities. Groundwater assessment activities used an air rotary rig to advance borings. As indicated in AR-4 and AR-5 in the Phase I / II Groundwater Report, on June 11–12, 2007, no water was detected during drilling, yet 15 feet of standing water from unknown intervals was present in the boreholes one to two days later. Further, the depths of the borings sometimes exceeded the depths of the nearby Harpeth River by 25 feet.

TDEC does not agree. Based on a review of the field notes, it appears the bedrock aquifer is semi-confined, allowing the water level to rise once the water producing zones are intersected. It can be expected in this situation that the deeper Hermitage Limestone is the water producing zone and the potentiometric surface will rise to a level equal to or above the level of the Harpeth River, which it does in all cases.

18. Triad's well drilling methods for well RW-1 likely caused free product observed at boring AR-1 to migrate further to the west towards Daniels Drive and Liberty Creek due to Triad's use of 600 gallons of drilling water. Subsequent groundwater monitoring of the well that has apparently not indicated the presence of light nonaqueous phase liquid (LNAPL) is not surprising given the hydraulic head that would have been present with the addition of 600 gallons of water. There is no down-gradient well capable of monitoring LNAPL in this area or off-property and therefore, the extent of LNAPL has not been defined.

TDEC does not agree. It is true that the drilling method used for this well may "mask" a likely impact, this is the state of this industry. Water is often needed during the drilling and TDEC does not believe that the use of water in this situation was employed to "mask" a LNAPL. It is highly unlikely that the drilling fluids used (600 gallons) would be sufficient to remove all the free product, especially after development and evacuation efforts were conducted at the well. Recent pilot testing for vacuum extraction in the on-site soil source area has demonstrated that well RW-1 is hydraulically linked to the source area and may yet prove useful in remediation efforts, including monitoring for any further occurrence of LNAPL discharge from the nearby source area.

19. Triad's use of potentiometric diagrams that combine water elevations from all wells should be rejected. Triad concluded in August 2007 that there is a "lack of free hydraulic connection" between wells MW-1, MW-2, MW-3, AR-1, and RW-1 – yet Triad uses the data to support all risk assessment and corrective action conclusions. Triad has been constructing potentiometric surface diagrams from these well in addition to MW-4 and MW-5 – even though they previously admitted that the wells monitored different water-bearing zones. The potentiometric surface diagrams provided by Triad therefore do not represent true groundwater flow directions.

TDEC does not agree. At sites with fractured limestone, it is difficult to install monitoring wells that produce groundwater in sufficient quantities to sample. While we agree that the monitoring system is not ideal, under the heterogeneous geologic conditions at the ELMCO site, it would be unrealistic to expect the potentiometric surface maps to reflect homogeneous geologic conditions. Although it is possible that MW-4 and MW-5 could monitor different water-bearing zones, they monitor the most shallow water bearing zones and reflect the potentiometric surface at those locations.

20. The monitoring system installed by Triad is incapable of monitoring the zone of highest concentrations, and additional wells should be installed. Triad concluded that groundwater is "limited to a thin zone at the top of rock, predominantly in bedrock depressions or cutters", yet only one (1) of the five (5) wells (RW-1) installed by Triad even monitors the top-of-rock groundwater. One source area well (AR-1) is even double-cased to actually prevent shallow top-of-rock groundwater from even entering the well. The monitoring system on-site is therefore not capable of monitoring the highest concentrations.

TDEC does not agree. TDEC believes that the monitoring system is capable of monitoring the zone of highest concentrations. The quoted passage is found in a discussion of site geology in the Corrective Action Plan, in the paragraph referring to site soil and the occurrence of groundwater within the soil, not groundwater in general. It should be noted, however that the upper most layer of groundwater is not likely present at all times. It is expected that flow occurs along this preferential pathway only during wet periods.

21. Additional groundwater monitoring wells should be required so that each water bearing zone has at least three (3) wells (at least 2 down-gradient and one up-gradient) so that an accurate potentiometric surface diagram can be produced for each water-bearing zone, as required by U.S. EPA rules and guidance for groundwater investigations.

TDEC does not agree. See TDEC response to comment #17.

22. Triad's claim that the groundwater concentrations in AR-1 are improving – therefore implying that conditions are getting better – should be rejected. This conclusion has no merit because Triad admitted in the July 2007 letter to TDEC that a "steel isolation casing (for AR-1) was set to prevent cross contamination of groundwater with solvent found at the top of bedrock". In fact, Triad set more than one casing in the well to isolate upper groundwater with deeper zones. Triad further concluded "the lack of free product indicates that either the steel casing or the groundwater closed off the migration pathway for the free product, and the product found in the well was isolated from its source". Groundwater monitoring results from AR-1 cannot possibly be used in making arguments that the groundwater quality is improving because the well was constructed to keep contaminants out of the well.

TDEC does not agree. Triad's claims were valid in the context they were made. Previous Geoprobe investigations demonstrated that contamination existed at the top of bedrock in the area near AR-1. Drilling below the known contaminant zone into the bedrock required isolation casing to prevent downward movement of the contaminants with the drill stem. The installation practices followed State and EPA guidance. The well is used to monitor a deeper interval and the conclusion that conditions were improving was valid when first made. Additional groundwater monitoring data will be used to determine whether this trend continues. It is important to note that this well is not monitoring the anticipated free product interval. When results from AR-1 showed that contamination had already migrated into the bedrock, well RW-1 was drilled adjacent to AR-1 and screened across the soil-bedrock interface in an attempt to monitor that zone. The semi-confined nature of the aquifer may have defeated that purpose by causing water to rise up within the well (though still within the screened interval) and effectively damming the flow of free product into it. New data from RW-1 generated by vacuum pilot testing and subsequent groundwater sampling will allow further evaluation of this area of the site.

23. Triad's claim that groundwater concentrations in MW-2 have declined in an effort to support their conclusion that contamination is improving should be rejected. A review of the groundwater data for MW-2 does indicate lower concentrations of acetone; however the water level was five (5) feet higher than the screened interval of the well. When one considers the water level (June 3, 2008 event was 618.07 feet mean sea level) and the screen elevation (613.7 to 583.7 to feet mean sea level), the drop in acetone concentration may be because the water level was five (5) feet higher than the screen. The highest concentrations of emulsified acetone in groundwater and free product acetone would be expected to occur along the upper-most groundwater fringe. The June 2008 results for MW-2 cannot therefore be used for making definitive trend determinations.

TDEC does not agree. Acetone is almost completely miscible in water. Therefore, its detection would not be expected to be limited to the zone near the water table or just below it. That is an important factor to keep in mind with respect to the toluene detections. Although if free product toluene were present in the vicinity of the monitoring well, dissolved phase toluene would be expected to be present at much higher concentrations than those observed.

24. Triad's use of an assumed 20 percent effective porosity for the bedrock should be rejected, and actual wide spread porosities should be determined. The value used by Triad may not be representative of conduit flow that Triad admits exist when they concluded that the void space size where groundwater exists "is unknown". Triad never attempted to gather this information. Therefore, contaminant mass could be grossly underestimated.

The contaminant mass calculated is only an estimate. It has been our experience that field tests for porosity are less than reliable and we have good information from reputable literature to assist with these estimates. According to Freeze and Cherry,

1979, porosity for a limestone varies from 0-20 percent. As mentioned by the commenter, this estimate does not account for conduit flow. Conduit flow is not expected within the Hermitage Formation but possibly within the Bigby Cannon and a preferential flow path along the soil and bedrock interface.

25. Triad's use of an estimated porosity (1 percent) for Daniels Drive area mass calculations should also be rejected. Triad used assumed values from a textbook without any basis to support the on-site porosity – rather than obtaining and using actual site-specific porosities.

TDEC concurs. See response to comment #24.

26. Triad should be required to collect Daniels Drive-specific to support their conclusion that it is "unlikely" that Daniels Drive residents have been affected by volatile organic compound contamination due to the thickness of soils beneath the homes. Triad, nor anyone else, cannot possibly make such a determination without actually drilling in the area to know the depth to the bedrock, the location and orientation of bedrock joints, the depth and location of free product in the groundwater, the depth and location of free product contaminated soil beneath Daniels Drive, and the seasonal high groundwater relative to crawl spaces and basements.

TDEC does not agree. During the emergency response phase of the investigation TDEC's contractors sampled the basements/crawlspaces of every house on Daniels Drive where access was granted, and no vapors were detected. In April, 2007, time integrated (24 hour) air samples were collected from the basements of 3 homes on Daniels Drive by ELMCO consultants. No vapors were detected above an acute or chronic Minimal Risk Levels (MRLs). Although ELMCO skipped some of what might be considered the typical screening steps in determining whether vapors are a concern, the data was collected as part of an emergency response action and is considered valid. ELMCO has agreed to perform a Geoprobe soil gas survey in the Daniels Drive right-of-way to better support and/or disprove their previous conclusions.

27. Triad's work regarding vapor intrusion and air monitoring should be rejected. The CAP and the associated risk assessment did not properly assess the vapor intrusion risk relative to U.S. EPA's vapor intrusion guidance. As such, there is still no basis to conclude that the residents on Daniels Drive are not at risk. At a minimum, current vapor intrusion work has not used appropriate sampling and analyses procedures, the location and depth to the most contaminated areas off-site have never been established, not all exposure pathways have been considered, and the cumulative effects of multiple VOCs have not been considered.

TDEC does not agree. TDEC has regulatory primacy over this site, this is not an EPA managed site. While the sampling did not follow TDEC's established sampling protocol the sampling data is still relevant and useful. ELMCO has agreed to follow EPA guidance for vapor intrusion to evaluate potential risk to receptors. See TDEC

response to comment #26.

28. Triad's claim that that the bedrock is "tight" in an effort to downplay the potential domestic use of groundwater in the area should be rejected. Triad conversely concluded that the groundwater hydraulic conductivity might be 1,000 feet per day. The potential certainly exists that the public could use the groundwater for domestic use if a well is placed in the correct location.

It is possible that a local landowner could use groundwater for production. The 1,000 ft/day value is based on the maximum measured permeability and maximum gradient. Furthermore, this estimate was based on a slug test analysis which would only test the area in closest vicinity to the well. Additionally, according to the Division of Geology's "Ground Water in the Central Basin of Tennessee" by Roy Newcome, Jr., the Hermitage formation, which underlies Daniels Drive is a very poor water producer, so it would be unlikely that a well would be installed. According to the same publication, the Hermitage forms an effective seal greatly restricting the downward seepage of water to the underlying formations.

29. Triad installed AR-1 and RW-1 as "recovery wells" yet the sheer design and construction keep them from being able to be used as such.

It was originally hoped that both wells could be used as recovery wells. As noted in the response to question #22, the rising of the water within the wells from the semi-confined groundwater conditions possibly prevented any substantial recovery of free product. Recently, AR-1 was cleaned out and completed as a 2 inch stainless steel monitoring well and well RW-1 was tested for use in the vacuum extraction system being designed for the site. Although not ideal for use as recovery wells, these wells still provide a useful purpose – monitoring the contaminant concentrations in the groundwater immediately down-gradient of the source area. Once the source area soils have been sufficiently remediated, one or both of these wells may also be used to evaluate the presence of and perhaps effect the removal of free product solvent within the bedrock in the source area.

30. Triad's determinations for bedrock groundwater flow velocities should be rejected because the Bower and Rice method used to calculate flow is not appropriate for use in fractured, conduit flow bedrock. The method is only suitable for use in porous media. A tracer test should have been performed instead and should now be required.

TDEC does not agree. After reviewing the slug test data it appears that the Bouer and Rice method is applicable for each of the wells with the exception of MW-1 which had the highest hydraulic conductivity estimate. The slug test itself is designed to test the aquifer near the borehole and it will test for both primary and secondary porosity. See TDEC's response to comment #18 regarding drilling methodology.

31. ELMCO's apparent working with the City of Franklin to restrict installation of water

wells in the area because ELMCO's inability to adequately clean up their contamination denies citizens the right to use a Water of the State.

Restricting the use of groundwater for use as a drinking water source is a standard practice. Because of the nature of the aquifer, development of wells for any purpose in the area of concern is unlikely and to the extent Franklin decides to impose groundwater use restrictions, it would not deny any person a meaningful right to water.

32. The CAP should be rejected because Triad admits numerous times in the CAP that the nature and extent of contamination have not even remotely been defined - contrary to the terms of the Order. A CAP cannot possibly be approved without first determining such. Triad admitted in the CAP that the nature and extent of contamination have not been defined in their following written statements:

The current size of the free product plume "cannot be determined from existing data".

The contamination in the former tank farm area soils was "fairly well defined". After over a year of investigations, there should be complete delineation according to terms of the Order.

The extent of the dissolved-phase plume "has not been completely defined to the east or the north". The "nature and extent of contamination in the excavated and unexcavated soils has as yet not been defined".

The exact migration pathways of free product "cannot be established with certainty". There are "data gaps" and that additional investigative activities "may require a change in these planned corrective actions".

Determining whether free product remained "in the pipeline" between the source area and the seeps was critical, yet no investigation to-date has included anything to determine this critical factor.

An estimation of the free product to calculate contaminant mass "would be dependent on understanding the specific geometry of the conduits and fractures", and that "geometry is unknown".

Not until sampling is performed of the excavated and unexcavated soils at Liberty Creek that "any necessary corrective actions would then be designed and implemented".

That other "release mechanisms cannot be ruled out with certainty". Ironically, they have never looked for those other release mechanism even though the Order and the November 20, 2007 Notice of Deficiency required that the contamination be delineated.

TDEC does not agree. We agree that the nature and extent of contamination has not been completely defined, and ELMCO has noted this as referenced above.

However, they were tasked to proceed with a CAP which at this point should be considered a phased approach to site characterization and remediation interim action. Full delineation of a contaminate plume is not necessary to perform interim remedial actions. The approximate limits of impact have been identified such that they can proceed with the next phase of remedial response.

33. A detailed investigation should be required of ELMCO from the ELMCO property towards Liberty Creek or the Harpeth River so that the true migration pathways and risks to human health and the environment are defined. Horizontal well placement off-site seemed to have focused away from the expected areas of highest contamination in the Daniels Drive - instead focusing on where the contamination is less likely to be.

TDEC does not agree. ELMCO has repeatedly stated that contamination would likely be found between the tank farm and the trench along Liberty Creek. They have even suggested that free phase product likely exists along this pathway. In order to establish the extent of impact they have installed a number of vertical wells along the perimeter of the anticipated plume in a standard groundwater investigation, monitoring wells are placed to establish the horizontal and vertical plume boundaries. Wells are generally not placed in the source area.

34. Triad concluded that "disruptive investigations" would be required to assess the contaminants in the Daniels Drive area as an excuse why delineation consistent with the Order has not yet been completed. The Order does not specify that the investigations must not be disruptive. In fact, there has never been any proposed activities off-site whatsoever in the Daniels Drive area for the public or TDEC to decide what is "disruptive". The public should be allowed to comment on what activities are proposed by ELMCO on their property to determine what is "disruptive".

TDEC does not agree. Drilling within the most contaminated portions of the aquifer under Daniels Drive could result in undesirable airborne distribution of contaminants to the residents. Drilling done on site has demonstrated the difficulty of preventing vapors from entering the atmosphere. Further, the cul de sac area of Daniels Drive presents certain physical limitations for the placement of a drill rig. A monitoring well was installed in the Daniels Drive area, (MW-5), that provided important information regarding groundwater contamination in the area. Additionally, a soil gas survey will be conducted in the Daniels Drive right-of-way by ELMCO as part of the phased interim corrective action measures to evaluate vapor intrusion potential. If TDEC determines that further investigation in the Daniels Drive area is warranted, every consideration will be given to the property owners so that any disruption is minimized.

35. The proposed two (2) new wells serve no purpose in defining additional sources of contamination and serve no purpose in defining the contamination where the contamination is likely the highest - all necessities for designing a CAP.

TDEC does not agree. TDEC has determined that the Egyptian Lacquer facility has

been adequately evaluated for other on-site source areas that might be contributing to the solvent contamination that has been identified in the groundwater. The potential for offsite sources has not yet been addressed. The two wells should help to identify the extent of impact and establish background concentrations which should help to better design the CAP. ELMCO has assumed the worst case scenario with respect to contamination under Daniels Drive, by stating that free product is likely present in isolated masses.

36. Triad's claim that the absence of free product in MW-3 during March was a result of the absorbent boom placement in the well should be rejected – at least until they prove that the product did not migrate down-gradient. It is equally or perhaps more likely that the free product flowed down-gradient from the well towards Daniels Drive residential properties towards an area that is not up-gradient of the recovery trench.

TDEC does not agree. It is our understanding that the absorbent sock was placed in the well to capture free product. The sock would have only intercepted free product in the immediate area. It would not have prevented migration around the well. September groundwater monitoring has shown that free product has once again accumulated in monitoring well 3 (MW-3). The free product in this area is of concern to TDEC, and TDEC and ELMCO are evaluating measures to address this concern.

37. According to the potentiometric surface diagram included in the CAP, there is possibly no down-gradient monitoring well between MW-3 and Liberty Creek. Also, the potentiometric surface diagram infers that free product observed in MW-3 will eventually discharge north of the interceptor trench.

Previous discharge concentrations at the creek and trench suggest that there is a preferential flow path from the source area to the trench. It is anticipated that the free product in MW-3 is closely related to its proximity to the source area. Additionally, TDEC and its contractors conducted a seep and spring survey in Liberty Creek and found no evidence of additional discharge points.

38. Monitoring wells that screen unknown water-bearing zone intervals should not be used for making potentiometric surface diagrams or for determining concentration determinations relative to risk. Triad was unable to determine the depths of water bearing zones when wells MW-1, RW-1, MW-3, and MW-5 (4 of the 6 wells) were installed. Monitoring wells screened across multiple intervals can dilute any discrete contamination zones and therefore, the groundwater data should not be used for conclusive trend determinations.

TDEC does not agree. TDEC believes that the groundwater data can be used for trend determinations. Screening of water bearing zones in relatively tight aquifers can be problematic, but boring logs provided in the reports show soft drilling or fractures within the well screen intervals, and these zones are reasonably assumed to be where water is being produced. TDEC required that groundwater sampling

be performed using low-flow methods with pumps set within the screened interval near these likely water bearing zones. This acts to prevent dilution, even assuming dilution from such low-yield wells is a problem. The data collected is therefore still useful for site characterization and risk assessment. Further, trend determinations can be made from any data set when compared with respect to time.

39. It is also possible that the wells are cross contaminating otherwise uncontaminated water bearing zones because the wells screen such a wide swath of bedrock.

TDEC concurs. This is a common concern when installing wells in a relatively tight aquifer system. Dry wells are of little use in a characterization study.

40. Triad installed wells deep into the bedrock, and well placement did not focus on monitoring the upper-most water-bearing zone in low-lying areas of the irregular surface of the bedrock. Additional wells specifically targeting those lowest-lying bedrock areas on and off-site should be installed. Of the 29 Geoprobe borings that were and / or free product) at the top of bedrock in 10 borings. When a bedrock contour diagram is developed and integrated with boring observations of groundwater, advanced in the aboveground tank farm area, Triad reported groundwater (soil sampling results, and free product observations, the borings in the lowest depressions were the most heavily contaminated – yet only one (1) well capable of monitoring conditions (or recovering free product) in this zone has ever been installed.

TDEC does not agree. The existing data suggests that the shallow-most water bearing interval is being monitored and the majority of the field data supports this premise. Wells AR1 and RW1 are set in the lowest top of rock elevation immediately downgradient of the source area. Water beneath the site is in a large degree under semi-confined conditions.

41. Of the four (4) wells installed on-site, only one (1) well (RW-1) is screened to bracket top-of-bedrock groundwater. Further, only RW-1 was installed within the zone of highest concentrations; within the zone of highest hydraulic conductivity; and within the lowest bedrock elevations indicative of “cutters” or linear depressions in the bedrock. The top of the well screens (meaning that the actual screened intervals extend much deeper) for the remaining wells are at least 36 feet (MW-1), 27 feet (MW-2), and 17 feet (MW-3) below the top of bedrock and outside the zone of “cutters”, as defined by Triad during their Geoprobe drilling investigation. It is likely that the wells are monitoring different water-bearing zones than RW-1. As a result, the monitoring system capable of monitoring the zones of highest contamination and the main migration pathways does not exist. A system should be created.

TDEC does not agree, and believes the current monitoring system is sufficient. See TDEC response to comments #s 17, 19, 20 and 40.

42. Some wells are screened below the elevation of the Harpeth River and Liberty Creek, even though visual observations along the Harpeth River bluff indicated groundwater

discharges from the Hermitage formation above the river water level.

TDEC does not agree. Any "discharges" observed along the Harpeth River bluff would have occurred in the wet season and do not represent an uppermost continuous water bearing zone. No groundwater discharge points (seeps) other than those previously identified have been found in the Harpeth River or Liberty Creek.

43. Triad should be required to provide actual subsurface data to support their estimation of the "inferred trend" of the cutter that is believed to extend from ELMCO to Liberty Creek. Even after over a year of investigations, Triad has still not determined whether or not the cutter actually exists, much less its size and location.

TDEC agrees that, additional proof and/or documentation should be provided to support this theory. ELMCO has agreed to perform a soil gas survey investigation on Daniels Drive. As part of that investigation, TDEC has requested that a depth to bedrock survey be performed in an attempt to locate the "cutter".

44. Triad should be required to perform a fracture-trace analysis in addition to actual offsite subsurface investigations to determine the actual locations and orientation of the main bedrock joint migration pathway(s) given the importance on their assumptions on groundwater flow, contaminant migration, contaminant mass determinations, and human health risk.

TDEC does not agree. Although additional documentation should be provided, a fracture-trace analysis would be expected to be masked by localized anthropogenic effects. It is anticipated that additional site investigation will provide sufficient information.

45. The potentiometric surface diagram is likely skewed in the former tank farm area because of the thousands of gallons of liquids that were pumped into the subsurface and never removed. The process injected 3,249 gallons of liquid at and above the water table in the tank farm area. Plus, another 600 gallons of water were used when drilling RW-1. As a result, the true potentiometric surface is likely still unknown.

TDEC does not agree. Data collected from wells RW1 and AR1 before and after BIOXX injection show that the potentiometric surface was back to steady state conditions prior to measurements collected for the potentiometric surface map presented in the CAP for 6/3/08.

46. The data provided by Environmental Science Corporation cannot be used to make downward concentration trend determinations or to confirm / deny the presence of constituents. Triad's choice of laboratory consistently used laboratory method detection limits that were too high, and the laboratory consistently under-reported concentrations when compared to split samples sent to the TDEC lab and to Test America.

TDEC does not agree. Method detection limits are a concern for most of the initial

sample results. The data is still valid despite variations between the different labs, which is not unusual. Large concentrations of individual analytes will create masking effects that will make quantification of other analytes improbable. In many cases, dilution is the only means available to quantify analytes that are present in large concentrations. We have been informed that the consultant's laboratory is working to make sure they keep the MDLs down below the action levels. See also TDEC's response to comment #15.

47. Unless MW-4 screens the same interval and joint that is the migration pathway of the main seeps in Liberty Creek, the data from MW-4 cannot be used to make such a definitive conclusion on the worst-case groundwater concentrations on the west side of Liberty Creek. Triad concluded in the CAP that free product toluene flows into Liberty Creek along a discrete two (2)-foot section in the creek bank. Visual observations in the area indicate that the free product discharges from the soil above the top of the bedrock. MW-4 is screened from eight (8) to 18 feet below the top of bedrock.

TDEC does not agree. TDEC was unable to locate the "(2)-foot section" noted by the commenter. Also, see TDEC's response to comment #16.

48. To understand the variability of seep concentrations, Triad should be required to calculate contaminant mass entering both Liberty Creek and the Harpeth River and to determine what effect increased base flow, stormwater, or seasonal variations in both the creek and the Harpeth River have in terms of constituent concentrations.

TDEC does not agree. Please see TDEC's response to comment #13.

49. Triad should be required to correlate trench operational success to a drop in Liberty Creek concentrations and contaminant mass. Until such time, no conclusions can be made about contaminant reductions relative to the overall net drop in contaminant loading to the Waters of the State.

The trench operations that have been performed and that are planned in the near term are targeted toward interception and removal of floating free product solvent, and not necessarily toward impacting dissolved contaminant concentrations in Liberty Creek water samples. While TDEC believes that such operations contribute significantly to reducing the contaminant mass, it is difficult and meaningless to try to correlate this to calculations based on dissolved concentrations. See also TDEC's response to comment #13.

50. Smearing of soils and free product would not be limited to the area along Liberty Creek but also the 800-foot area from the trench to the ELMCO facility beneath Daniels Drive. There is no reason whatsoever to believe that smearing has not occurred along the top of bedrock from ELMCO to Liberty Creek or the Harpeth River. Triad explained that "smearing" of free product has occurred wherever free product has come into contact with soils. If the nature and extent have not been defined at Liberty Creek, in addition to the area beneath Daniels Drive, it is impossible to propose a site remedy. Such nature and

extent of the entire smear zone is required by the Order and necessary for selection of a remedy.

Smearing of soils by contaminants is possible only where rising groundwater (or, in the case of Liberty Creek floodplain, flooding surface water) carries contaminants with it into the overlying soil. The available data indicates that groundwater beneath Daniels Drive is within the bedrock, and the rise and fall of water levels within the bedrock is unlikely to have created a smear zone in the overlying soil. The only potential mechanism for soil under Daniels Drive to be affected by contamination is through diffusion of contaminant vapor, which has been addressed by indoor air sampling in three homes and air screening under most homes. ELMCO has agreed to design and implement an additional soil vapor investigation under Daniels Drive that will further address this issue. In the meantime, remedial action is critical at the source area to reduce future migration and at the discharge point to prevent exposure. Those are the two areas to be addressed first. ELMCO has proposed additional interim actions be conducted before any final remedy is considered and TDEC has accepted that approach.

51. Triad should be required to complete a detailed spring inventory in the downgradient direction to identify all seeps and springs along the Harpeth River. The survey should be performed during wet and dry periods of the year.

TDEC does not agree. A spring and seep survey was conducted by TDEC's contractor when the contamination was discovered in February 2007. While it was reported by (HRWA) in the August 7, 2008 public meeting that 4 additional seeps were discovered in the Harpeth River, below the confluence of the Harpeth River and Liberty Creek, a subsequent joint seep investigation by TDEC, TRIAD and HRWA personnel on August 12, 2008 did not locate any seeps or springs in the area. Information on the joint investigation can be found in TDEC's trip report, posted on TDEC's web site.

52. TDEC should impose financial penalties on ELMCO because the current pace of investigations has still not defined the extent of contamination almost 15 months after the Order was written. The investigations completed to-date have been a haphazard attempt to look where contamination is not likely and to make broad statements of lack of risk with minimal science to back up their claims. Only through financial penalty, can we expect that a more serious, competent investigation and clean-up plan be developed.

TDEC does not agree. ELMCO has been responsive to TDEC's directives concerning the investigation. Any assessment of civil penalties will be determined later by TDEC. A final risk assessment, consistent with EPA guidelines, will be required to be submitted by ELMCO that identifies all potential migration and exposure pathways.

53. The entire Triad investigation has virtually focused solely on the tank farm located 100s of feet from the manufacturing building and that their soil samples have yet to explain the

presence of eleven (11) VOCs detected in the groundwater.

TDEC does not agree. See TDEC's response to comment #35.

54. Triad found evidence that petroleum hydrocarbon contamination exists on-site, yet the investigations completed to-date have done nothing to identify the source(s) or to define the nature and extent. The Order should be revised to require such. Boring logs of air rotary borings that were included in the Phase I and Phase II Groundwater Investigation report indicated that petroleum hydrocarbon odors (that were distinctly differentiated from solvent odors) were present during drilling. Triad concluded that the source of the odors were petroliferous bedrock. There is no basis whatsoever to support the naturally occurring petroleum odor claim, especially given the historic uses of petroleum hydrocarbons on-site by ELMCO and the previous owner, Shell Oil (as a bulk oil storage terminal). While it is remotely possible that the shallow bedrock might be petroliferous, Triad has not demonstrated that to be true. It is more or at least equally likely that the constituents are related to inappropriate management of on-site petroleum fuels and ink wastes, according to Mr. Mike Hoyal of the Tennessee Division of Geology. Further, the U.S. EPA reports that both constituents are common in soil and groundwater at Superfund hazardous waste sites, and the ASTDR reports that they are common in resin formulations and dyes. Therefore, there is more reason to believe that the compounds are due to inappropriate waste disposal operations at the site.

TDEC does not agree. Chemicals historically used by ELMCO in their paint/lacquer manufacturing process contain some of the same constituents found in gasoline and diesel fuels. Furthermore, these constituents are not unexpected at industrial sites. Elevated concentrations at the identified source area are expected to be related to the initial release, as other constituents were commonly found with the toluene and acetone that are deemed the primary COCs. TDEC site inspections through the years have not reported any inappropriate hazardous waste disposal practices at the site.

55. ELMCO should be required to identify all sources of all contaminants present in the groundwater and surface water. To-date, none of the 40 total laboratory samples of the most contaminated soil intervals selected by Triad from 295 intervals contained these VOCs that have been detected in groundwater on and off-site: benzene; diisopropylether; isopropyl alcohol; n-propylbenzene; 1,2,3 trimethylbenzene; 1,3,5 trimethylbenzene; cis-1,2 dichloroethene; tetrachloroethene; methylene chloride; 1methylnaphthalene; or 2 methylnaphthalene. As a result, the source areas for these contaminants have not yet been defined, nor has the nature and extent of the contamination.

TDEC does not agree. See TDEC's response comments #35 and #54.

56. The only benzene reported in any soil sample was from the former drum storage area and underground storage tank area near the building, as reported in October 2006 Phase II Environmental Site Assessment (ESA). This indicates a possible benzene source area.

TDEC does not agree. See TDEC's response to comment #54.

57. Seep sampling indicates that other unidentified sources of VOCs exist. Seep samples collected at Liberty Creek have indicated the presence of dissolved-phase acetone, toluene, and multiple other VOCs that are used as raw materials by ELMCO, in addition to the presence of free-phase toluene. The occurrence of MIBK in the Harpeth River samples and none being detected in Liberty Creek; the occurrence of isopropyl alcohol in some (not all) Harpeth River seep samples and not in Liberty Creek samples; and the predominance of acetone being detected in the Harpeth River all indicate that there are source areas other than the solvent tank farm.

TDEC does not agree. See response to comments #35 and #54.

58. Neither the CAP nor the Order is complete because numerous constituents are not specifically mentioned or considered in the Order, the contaminant mass calculations, or in the risk assessment. Other volatile organic compounds not specifically mentioned in the Order or the CAP include benzene, di-isopropyl ether, ethylbenzene, isopropylbenzene, isopropyl alcohol, methyl ethyl ketone (MEK), methyl isobutyl ketone (MIBK), methylene chloride, n-propylbenzene, 1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene, 1,3-5-trimethylbenzene, xylenes, cis-1,2-dichloroethene, tetrachloroethene, methylene chloride, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene, among others.

TDEC does not agree. Further evaluation of ongoing monitoring data at the now lower MDL will be performed to help ensure that these minor or trace contaminants are adequately addressed. Also see TDEC's response to comment #43.

59. Triad's claim that the extent of the free product plume is limited to the east-west orientation of a bedrock joint located beneath the old piping elbow should be rejected. Significant amounts of free product have also been observed in MW-3, which is located approximately 100 feet to the north of the reported release point and outside the 15 foot swath designated by Triad as the free product migration area.

See TDEC's response to comment #43.

60. The CAP does not include an evaluation of corrective action measures for all source areas of contamination and therefore the CAP should be rejected until such activities are completed. The Order required ELMCO to prepare and submit corrective action plans to address "source area" soils. The US. EPA1 defines source area to include "both the location of the original release as well as locations where significant mass of contaminants may have migrated". Triad has acknowledged that LNAPL likely exists off-site yet no investigation has even been performed to define the nature and extent down-gradient from the ELMCO property. As a result, the CAP is incomplete and therefore cannot possibly be approved.

Although this site is not managed by EPA, further investigation will be implemented

in the Daniels Drive area and a soil investigation will be conducted in the main seep area at Liberty Creek. See TDEC's response to comment #2.

61. Soils contaminated with free-phase compounds will continue to contaminate groundwater for the foreseeable future, yet the locations of these smear areas off-site have never been determined. Triad explained that "smearing" of free product has occurred wherever free product has come into contact with soils. This smearing would not be limited to the area along Liberty Creek but also the 800-foot area from the trench to the ELMCO facility beneath Daniels Drive.

See TDEC response to comment #50.

62. The CAP allows for an undetermined mass of LNAPL to remain in the ground untreated, creating a long-term detrimental impact to the waters of the State and daily violations of the Tennessee Water Quality Control Act and the Clean Water Act. The U.S. EPA recognizes that LNAPL in free or residual phase "represents a significant mass of contamination that will serve as a long-term dissolved-phase source".

TDEC does not agree. U.S. EPA also notes that removal of LNAPL from a fractured and/or karst aquifer is one of the most difficult remedial challenges in corrective action efforts. Assuming property issues are resolved, ELMCO has committed to (1) operating the trench as long as free product can be effectively recovered and (2) eliminating the source area in the vicinity of the tank farm. Upon completion of the phased interim corrective actions, a final risk assessment will be performed by ELMCO to (1) determine the human health and ecological risk presented by any residual contamination left in place, and (2) determine if additional long term corrective actions are required.

63. Triad's claim that benzene is the "only human carcinogen that been consistently detected in water samples from the site" should be rejected. Tetrachloroethene and methylene chloride are both carcinogens and have also been reported on-site. Further, tetrachloroethene and cis, 1-2dichloroethene (also found on-site) can both degrade to vinyl chloride, which is a known carcinogen at an even lower concentration.

As noted above, the statement was made that benzene has been consistently detected in the water samples. Industry and regulatory standards require repeat detections of contaminants before their presence can be considered verified. The reference to consistency refers to being detected repeatedly in individual well samples. Perhaps with lower MDLs some of these other constituents will be consistently detected. See TDEC's response to #35 and #54.

64. Triad concluded that source area soils in the tank farm area "appear to be capable of continuing to release solvent constituents to the underlying groundwater".

TDEC concurs. The source area soils continue to be the focus of additional remedial work. Vacuum extraction pilot testing has been performed and demonstrated the

viability of this technology to effectively remediate these soils. At TDEC's request, ELMCO is developing a soil vapor extraction system and program to be employed at the soil source area as an interim action.

65. Triad should be required to submit the results of Extractable Petroleum Hydrocarbons (EPH) tests and chromatograph analyses for public review. Such tests were performed, yet no data has ever been presented for public review. The Consent Agreement and Order requires that ELMCO submit "all data that is obtained during the implementation of the CAPs".

TDEC is unaware of any EPH analyses performed at this site by ELMCO. TriAD has communicated that it is unaware of any EPH analyses and has not requested such analyses of any of its samples. TDEC has requested copies of selected chromatograms obtained by TriAD, although these are not consistently requested from the laboratories.

66. Without recovering all free product and heavily contaminated dissolved phase groundwater on and off-site, the contamination into Liberty Creek and the Harpeth River will continue into the foreseeable future.

See TDEC response to comment #62.

67. The source of naphthalene in on-site soil has not yet been identified. Mr. Chuck Head of TDEC concluded over a year ago in a May 17, 2007 letter regarding this site that "naphthalene (detected in on-site soil) is a key indicator of the presence of diesel fuel and No. 2 heating oil". An 8,500 underground storage tank existed on-site for almost 20 years.

TDEC does not agree. Review of the relevant soil sample analytical results demonstrate that the naphthalene referred to was detected in a soil sample collected from 8.5 feet beneath the leaking pipe elbows at the tank farm. Naphthalene has not been detected in any other soil sample, including samples in the source area from lower intervals than the referenced sample. Naphthalene has not been detected in samples from boreholes surrounding the source area, nor in any groundwater samples obtained at the site.

Soil samples collected at the time of the UST closure showed no contamination resulting from that tank. While Mr. Head's May 17, 2008 letter does state that "naphthalene is a key indicator of the presence of diesel fuel and No. 2 heating oil", his next sentence clearly states, "All soil sample results were below detection limits. Further, groundwater samples have been analyzed for naphthalene, with all results below method detection limits for naphthalene."

68. Documentation of proper closure of the heating oil tank and a change-of-service for the gasoline tank should be made available for public review as part of this CAP. Although the CAP reported that the on-site heating oil tank was closed in 1997 and results were

sent to TDEC, there is no record of such closure in the Division of Underground Storage Tank files at either the Nashville Field Office or the Central Office. Further, there is no documentation that the gasoline storage tank was investigated prior to being converted to a "process cooling water tank".

The documentation and confirmation sampling results concerning the two underground storage tanks is located and can be reviewed at TDEC's Division of Solid Waste Management central office.

69. Triad should be required to expand the subsurface soil boring investigation to the area surrounding and within the manufacturing building. Triad concluded that groundwater constituent concentrations continue to increase at MW-1 (nearest the manufacturing building and drum storage area) with no plausible explanation as to the source of the contamination.

TDEC does not agree. Potentiometric maps show that MW-1 is down-gradient of the tank farm. If additional information indicates the need, additional investigation of on-site sources will be required.

70. ELMCO should be required to sample soil and groundwater for semi-volatile organic compounds (SVOCs) that are indicative of diesel fuel and heating oil contaminants.

TDEC does not agree. ELMCO samples on-site monitoring wells for SVOCs in September/October 2007 and found no indication of a release of diesel fuel or heating oil. TDEC does not require continued analysis for constituents that are reasonably eliminated from concern by sampling data. Napthalene is a constituent of diesel fuel and heating oil, but also some solvents, and is included on the 8260B VOC analytical list, for which all site samples are routinely analyzed. With the exception of the one soil sample previously discussed, naphthalene has never been detected.

71. The two (2) additional wells proposed by Triad do nothing to define the additional sources of contamination; serve no purpose in defining contamination where the risks to the public are the highest; serve no purpose in defining the contamination where the contamination is likely the highest; and do nothing to define the sources of all volatile organic compounds whose source(s) have yet to be defined.

TDEC does not agree. See TDEC response to comment #35.

72. Contaminated soils on and off-site will continue to contaminate groundwater and surface water, based upon Triad's conclusion that corrective measures for source area soils are needed "to reduce the potential for solvent constituents to migrate from the soils into the underlying groundwater". The contaminated source area soils are not limited to the site, and the CAP does nothing to address any off-site contamination beneath Daniels Drive.

See TDEC responses to #33, #34 and # 64. Based on the rebounding concentration

levels, it is expected that ELMCO will proceed with interim corrective actions to limit offsite migration and reduce offsite exposure.

73. The CAP should be rejected because ELMCO still has not completed a comprehensive investigation to support corrective actions, has provided a thorough remedial cost estimate or a technical feasibility evaluation, or a timeframe evaluation for all reasonable alternatives, as required in a U.S. EPA approved RCRA Corrective Measures Study or CAP.

TDEC does not agree. This work is being conducted under TDEC's jurisdiction and the State Remediation Program. ELMCO has agreed that additional site investigation is warranted and will be conducted through implementation of a series of interim measures designed to augment the existing site conceptual model. The regulatory mechanism used at this site is acceptable under EPA requirements.

74. Triad's plan to realign of Liberty Creek so that oxygenation can occur for heavily volatile organic compound contaminated water should be rejected. This "treatment" process will result in volatile organic compound evaporation into the air – thereby increasing the inhalation hazard. This pathway and its expected vapor concentrations were never considered in the risk assessment.

TDEC concurs. TDEC will require further evaluation of the potential impacts of increased contaminant volatilization on ambient air concentrations and public health before any such remedy will be pursued.

75. The CAP should be rejected because Triad's conclusion that no other more effective means of managing migrating free product exists other than the recovery trench. Triad has never even considered any other alternatives for off-site free product recovery, as required by a corrective action alternatives analysis.

TDEC does not agree. See TDEC's response to #73. Additionally, TriAD presented brief discussions of possible remedial alternatives in the original and revised CAP's. As interim measures are developed, TDEC will request alternatives to those approaches.

76. The proposed dual-phase vacuum extraction remedy at the aboveground tank farm should be rejected as a comprehensive corrective action because the CAP never considered any remedial alternatives for the off-site source area between ELMCO and the trench, nor did it include other unidentified source areas on the ELMCO property.

TDEC does not agree. It is anticipated that any source area remedial actions will proceed as quickly as possible. If additional remedial action efforts are required, either on site or off site, TDEC will ask ELMCO to take appropriate remedial actions. TDEC reserves the right to require additional remedial action at this site regardless of the steps outlined in the CAP. See TDEC response to comment #73.

77. The dual-phase extraction treatment should be rejected until such time extraction wells are properly located to provide maximum recovery benefit. The proposed extraction wells are not properly located in the areas most likely to contain free product. Specifically, none of the four (4) proposed multi-phase extraction well locations (GP-25, 26, 27, and 28) had groundwater at the top of bedrock; only one was in a topographic low elevation of the irregular shaped bedrock and therefore within the highest zone of hydraulic conductivity; none were in the downgradient direction of the contaminant migration; and none were near MW-3 which has recently contained free product.

TDEC does not agree. The extraction wells were placed at the tank farm within the zone of most contaminated soil. The pilot testing also included well RW-1, which addresses the top of bedrock saturated zone immediately down-gradient of the soil source area. Subsequent implementation of this remedial action may be broadened to include RW-1, additional wells, or other existing wells. TDEC will thoroughly evaluate any extraction system to ensure that it will achieve the maximum possible recovery.

78. Triad's conclusion that "presumed that any remedial action taken to address the toluene and acetone would also remediate these associated VOCs" should be rejected. The source area(s) for numerous VOC constituents (other than acetone and toluene) have never been identified because there has never been an attempt to do so. Further, dual-phase extraction in the former aboveground tank farm will do nothing to remove other contaminants because most of the VOCs have never been found in the soil in this area. As such, the CAP is incapable of removing or treating all volatile organic compounds that are found in the groundwater and surface water.

TDEC does not agree. See TDEC's response to comment #54.

79. The CAP should be rejected because it relies on calculations that incorrectly and inadequately account for contaminant mass. Bedrock porosities were not based upon site-specific or even regional specific limestone. Adequate time and resources have been available for over a year to determine actual site-specific porosities, yet no attempt has ever been made by Triad to do so. The 20 percent effective porosity estimate used by Triad is not representative of conduit flow in solution-enlarged joints and fractures. Further, there has been no attempt to include the contaminant mass associated with numerous constituents other than acetone and toluene. Therefore, the contaminant mass calculations by Triad cannot possibly be expected to be accurate or even a reasonable estimate for corrective action purposes.

See TDEC's response to comment #24.

80. Any claim by Triad that seep concentrations in Liberty Creek and the Harpeth River are improving should be rejected. A review of TDEC water sampling results from January 18, 2007 through June 14, 2008 and calculating mass discharges in pounds per day into Liberty Creek (see attached graphs) indicated that contaminated groundwater concentrations and mass loadings are cyclic, with the highest mass loadings occurring in

January 2007, April 2007, September 2007, and again in March 2008. The mass loadings are the highest during the end of winter / beginning of spring and the end of the summer. Only through a thorough understanding of the connection to rainfall and groundwater elevations can Triad attempt to understand the occurrence and movement of free product into the trench.

TDEC does not agree. See response to comment #13.

81. The CAP and the associated risk assessment should be rejected because both assumed that contaminant seep concentrations were decreasing - when in fact they have proven to be increasing based upon the most recent July 1, 2008 seep sampling event. The CAP should be rejected because the contaminant mass calculations and the risk assessment assumed an average dissolved phase concentration from well AR-1 -which is double-cased to exclude heavily contaminated groundwater from even entering the well. Therefore, calculations along the joint pathway grossly underestimate the mass. Further, the calculations assumed groundwater concentrations from a February 2008 sampling event, and those concentrations do not represent the highest concentrations observed from that well.

TDEC does not agree. See TDEC's response to comment #13. Additionally, at the conclusion of the interim action steps, ELMCO will provide TDEC a final risk assessment to supplement the one prepared for ELMCO that accompanied the Revised CAP.

82. The CAP should be rejected because TDEC has never determined what constituent concentrations in the soil are protective of human health and the environment. Triad argued in the CAP that they could not determine the volume of soil that would require treatment for corrective action purposes - a critical requirement of CAP completion and alternatives analyses. Therefore, the CAP alternatives analyses were incomplete.

TDEC does not agree. While TDEC agrees that, ELMCO did not complete a feasibility study on various remedial alternatives, ELMCO will be required to submit different remedial alternatives and propose one of the alternatives as the final remedy. TriAd provided estimates of contaminant mass in the source area soils and ELMCO has committed to investigating floodplain soils. Furthermore, information in the risk assessment when finalized to meet TDEC criteria will be used to establish site specific cleanup levels. ELMCO has commented that this matter be managed in a series of interim corrective action steps before recommending a final remedy. TDEC agrees with this approach, and as interim measures are developed, we will request alternatives for those approaches.

83. Triad concluded remedial efforts at the former aboveground tank farm would reduce contaminant concentrations in Liberty Creek; however, there was no estimated time frame for when that benefit might be achieved. An estimate based upon scientific fact should be provided.

TDEC has determined that any estimates provided at this time would be premature given the current nature of the overall site characterization.

84. The CAP should be rejected because it offers no meaningful timeline for when cleanup objectives for soil, groundwater, and surface water will be met. Therefore, the CAP does not meet the U.S. EPA's minimum standard for a Corrective Measures Study. The U.S. EPA requires that when clean-up objectives cannot be met within a reasonable timeframe, "a remedial alternative that more likely would meet these expectations should be selected". Neither the clean-up objectives nor the length of time for any of the proposed remedies to achieve U.S. EPA or TDEC standards have ever been determined.

Please see TDEC's response to comment #73. Activities at this site have proceeded in a phased, interim action approach. Unfortunately, one of the selected actions (BIOX injections in the soil source area) that was initially used at the site, was not wholly effective. ELMCO is now pursuing additional soil source area remediation utilizing dual phase extraction. As new data is generated, a more accurate timeline for cleanup can be established.

85. Triad's conclusion in the CAP that a complete on-site treatment would be "quite expensive" and that dual-phase vacuum extraction cost were "much more reasonable" does not meet the minimum RCRA intentions for remedial cost evaluations. Further, the selected dual-phase extraction remedy cost did not consider off-site source area soils, did not consider continued, full-scale operation of the dual-phase system, and did not project how many years into the future the system will operate.

TDEC does not agree. See response to comment #73.

86. Triad's plan to recover free product from the ELMCO site to Liberty Creek should be rejected for any purpose other than removing free product nearest the trench. This pumping will only affect any free product in the near vicinity of the trench and will do little, if anything, to remove free product observed 800 away at the ELMCO property, beneath Daniels Drive, or from the likely 800-foot long smear zone. Triad's plan to ignore the historical cyclic nature of the highest concentrations, the unknown extent of free product beneath Daniels Drive, and the occurrence of smear zones. The work will do little, if anything, as a critical "determination as to whether or not substantial free product solvent might still be present", as determined by Triad.

TDEC agrees that any remedial alternative at the apparent principal discharge point will only remove free product from the immediate vicinity. The trench is at the down gradient end of the only known migration pathway, and one that is at least occasionally and partially an open conduit – by which free product has clearly migrated from the soil source area, including under the Daniels Drive area. It is hoped that the implementation of phased interim corrective measures will provide additional information regarding the extent of free product.

87. The CAP and the associated risk assessment should be rejected because neither properly

assessed the vapor intrusion risk relative to U.S. EPA's vapor intrusion guidance. There is no indication that the plan or its methods meet the minimum levels by U.S. EPA in the OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (EPA 530-D-02-004, November 2002). As such, there is still no basis to conclude that the residents on Daniels Drive are not at risk. At a minimum, current vapor intrusion work has not used appropriate sampling and analyses procedures; the location and depth to the most contaminated areas off-site have never been established; not all exposure pathways have been considered; and the cumulative effects of multiple chemical exposures have not been considered. Further, Triad has concluded that there is minimal risk without having multiple samples from homes during multiple seasons of high and low groundwater flow, high and low atmospheric pressures, or high and low ambient air temperatures. The CAP cannot possibly be approved because not all risks have been defined.

TDEC does not agree. We agree that the air sampling method employed by ELMCO did not follow the step by step process outlined in EPA guidelines; however, as stated in response to comment #26, the resulting data is still valid. ELMCO has agreed to follow TDEC guidance for vapor intrusion to evaluate potential risk to receptors, and ELMCO's implementation of a soil gas survey in the Daniels Drive right-of-way is the next step in this process.

88. The CAP should be rejected because Triad has still not adequately evaluated vapor phase contaminant migration pathways by their own admission in August 2007 when the first CAP was submitted. Triad concluded in the first CAP that "it is clear from evidence gathered during the drilling of MW-3 (located closest to the residential subdivision) that there is a vapor-phase component to the plume" and that those vapors appear to be related to the groundwater contamination, which is determined by bedrock "cutters" and fractures. To-date, these bedrock conditions have not been determined beyond the ELMCO property line and therefore, the seasonal risk from vapor hazards has yet to be defined or properly mitigated.

TDEC does not agree. See TDEC's response to comments #26 and #27. As additional data is generated, the contaminant migration pathways will be adequately assessed according to TDEC guidance.

89. The biodegradation study performed by Triad suggests that either (or both) free product or the BIOX treatment solution that was injected was toxic to naturally occurring degrader bacteria. Therefore, there should be no direct or indirect reliance on biodegradation as a remedial action in areas where free product is likely to exist.

We have been unable to find where TriAD proposed biological degradation of free product. In fact, TriAD has proposed natural attenuation only for the dissolved phase portion of the groundwater plume.

90. Triad's recommendation to place BOS 200 in the recovery trench to treat contaminated water before it reaches Liberty Creek should be rejected because the method has only be

used once in the U.S. without even knowing if the process worked. At best, one could this type of application to be experimental. According to Mr. Scott Noland of Remediation Products, Inc., the owner of the BOS 200 process, a critical determination for trench design and success with BOS 200 is to understand the dissolved and free-phase contaminant mass and how they fluctuate with time – factors that Triad have yet to understand. Further, Mr. Noland explained that the effluent from the trench would be expected to be extremely low in dissolved oxygen and very high in nutrients – all water quality degradation issues.

This methodology can be considered by TDEC with the understanding that a pilot study would have to precede any application.

91. The CAP should be rejected because there is no site-specific information to provide dimensions for the assumed main migration pathway along the illustrated “cutter” or bedrock joint. Triad has yet to complete any investigation whatsoever along the assumed joint pathway to even prove its existence, much less rely on any calculations or assumptions using the assumed 800 feet long, 15 to 100 feet wide, and 5 feet deep dimensions.

The assumptions may be reasonable given the information of conditions at either end of the “cutter-fracture” feature, knowledge of the orientation of large-scale fractures in the area, and experience in this type of geologic environment. Based on these assumptions, TriAD has never provided more than estimates of the “cutter” dimensions. ELMCO has agreed to perform a soil gas survey on Daniels Drive, and as part of that investigation, TDEC has requested that a depth to bedrock survey be performed in an attempt to locate the “cutter”.

92. Biodegradation calculations made by Microbe Inotech Laboratories (MiL) are flawed and are not representative of the real conditions. Any reliance on this information either directly or indirectly to support remedial decisions should be rejected. First, the calculations assumed that no free product exists, yet there is ample evidence to the contrary. Second, the calculations were made based upon contaminant mass calculations provided by Triad that were not based upon any real data for the largest acreage (off-site) that is contaminated. Lastly, they assumed concentrations that do not represent the highest dissolved-phase concentrations. Therefore, any use of the estimated clean-up times calculated by MiL is not supported by scientific fact.

Although TDEC does not necessarily agree with the biodegradation estimates calculated by MiL and considers any estimated clean-up times premature, the microbial study provides useful information concerning the potential of the existing microbes to enhance the degradation of the contamination. ELMCO has agreed to perform additional investigative and remedial actions at the site in an effort to gather additional data from which to evaluate the need for additional corrective action measures.

93. Any direct or indirect implication from Triad that biological remedial processes can be

used to mitigate contamination should be rejected. The biodegradation study determined that degrader bacteria exist; however, the results indicate that no degrader bacteria exist in the zone of highest contamination where free product has been observed. Free product can be toxic to naturally occurring strains of degrader bacteria, as seemingly proven by the actual microbial sampling results.

TDEC concurs. See TDEC's response to comments #89 and #92. Additionally, TDEC is aware that the biological mitigation effects would only be observed in the areas of dissolved phase contamination.

94. The microbial study completed by MiL concluded that augmentation of groundwater with nutrients was not necessary to initiate bioremediation, contrary to Triad's recommendation and conclusion that resulted in the injection of over 3,000 gallons of primarily nutrient-rich BIOX liquid into the subsurface.

The BIOX solution was added six months before MiL's study, and was done in an effort to quickly address the source area soils. The BIOX effort was never intended to address groundwater. In fact, the Class V Injection well permit that was obtained for that effort made it clear that the BIOX was to be kept out of the groundwater and required monitoring to assure that it was.

95. The groundwater and surface water monitoring program for the site and all springs should include sampling parameters indicative of the nutrients and other constituents that were injected in the BIOX solution. Groundwater with high concentrations of nutrients can create and exasperate existing eutrophic conditions in the Harpeth.

Because of these concerns, the BIOX solution was specifically not injected into the groundwater so as to allow a buffer between the injection point and surface water. Measurements of pH in RW-1 before and after BIOX injection showed no change. The injection was carried out under a permit issued by the Tennessee Division of Water Supply, after a full review of BIOX and its possible effects on surface water.

96. Secaps conclusion that contamination entering the Harpeth River "poses no significant risk to aquatic organisms" should be rejected because actual samples obtained from the Harpeth River indicated low dissolved oxygen concentrations at the seeps. Only through the dilution effects of upstream flows (when they exist), do the dissolved oxygen concentrations improve to the point of supporting fish and aquatic life.

TDEC does not agree. Low DO conditions is a prevalent and pre-existing issue throughout the Harpeth River in the vicinity of Franklin, TN. These conditions exists both up and down gradient of the ELMCO release.

97. ELMCO should incur a financial penalty because the Notice of Deficiency issued to Triad for the first CAP specifically required a comparative timeline for remediation, yet no remedial timeline was provided for each alternative.

TDEC does not agree. See TDEC's response to comment #52.

98. ELMCO should incur a financial penalty for violating conditions of the Order that required remediation wastes be properly managed by June 30, 2007. Over a year later, those wastes remain on-site in violation of the Order and U.S. EPA rules. The wastes are a listed hazardous waste, and storage is not permitted by the U.S. EPA or by TDEC law for more than 90 days without a RCRA Part B permit.

TDEC does not agree. The Department's position is that ELMCO is not in violation of the Order or EPA regulations. ELMCO is not required to have a RCRA hazardous waste permit and does not have a "RCRA Regulated Unit" as described in Rule 1200-1-11-.06(a)1. ELMCO is responsible for the investigation and resolution of the environmental problems caused by the release of solvents from their facility. This is required under both EPA-RCRA regulations and the applicable Tennessee Hazardous Waste Management regulations. The difference is that the investigation and clean-up will follow a schedule, as required by EPA and State regulations that will insure a thorough and effective resolution to the problem rather than the specific RCRA criteria established for permitted hazardous waste treatment, storage and/or disposal facilities.

99. ELMCO should incur a financial penalty because listed hazardous remediation wastes have been treated on-site without first obtaining a U.S. EPA or TDEC permit to do so, a violation of U.S. EPA rules and in direct violation of the requirements of the Order. The penalty should be retroactive to the day wastes were first placed because Triad referred to the pile as an "active remediation effort" and a "biopile"- meaning that ELMCO has already begun illegally treating a listed hazardous waste.

TDEC does not agree. TDEC's position is that ELMCO is not in violation of the Order or EPA regulations (for reasons stated in TDEC's response to comment #98.) and that any funds being spent by ELMCO regarding the release should first be directed toward protection of the public and the correction of the problems caused by the contamination.

100. TDEC should reject Triad's plan for "reconfiguring the soils into a vegetated stockpile where additional treatment by that method might be effective" because that is an illegal activity that requires a permit.

The soil management plan was part of a larger interim corrective action plan first proposed in May 2008 by TriAD. There are allowances provided by TDEC and EPA policy relating to the management of remediation wastes, particularly in situations where efforts are being made to address substantive risks to human health and the environment. The central focus of that plan was conducting trench maintenance and accelerated and enhanced pumping activity at the trench.

Since proposing this plan, TDEC sampled the soil piles and found no significant concentrations of VOCs. This data will be utilized in making further

determinations with the property owner on how the soil in the soil pile will be managed.

101. Before the Public hearing, many faculty, staff and parents of students at the Lower School of Battleground Academy were under the impression that no further health risk existed and that there was no significant of these chemicals at the school. I feel that this was not a correct impression.

There is no air data that indicates any kind of health threat from Egyptian Lacquer, either inside the school or outside. The health comparison value for toluene is 0.08 parts per million. This value is set so that if the measured amount of toluene is at this value or lower, we can say with confidence that the levels are safe for adults and children. The value was derived by looking at the lowest concentration at which very subtle and reversible effects occurred and dividing that value by 100. The value is derived for a lifetime of exposure at that level. Children have the same capability as adults to metabolize toluene. Between April 21, 2008, and August 18, 2008, 4 weekly samples were slightly above 0.08 ppm. These concentrations are in no way a health threat since they are very, very close to the health comparison number and they are for only a week, not a lifetime.

102. On May 6, 2008, Mr. Scott Martin, a resident of Daniels Drive complained to TDEC that family members noticed a strong chemical odor that burned their eyes. They said the chemical smell was so strong that they had to leave the property. Their noses were burning and their eyes were watering. On May 7, 2008, Ms. Elizabeth Coker stated *"my daughter was playing soccer on the BGA playground. When recess was over, the entire class came inside and all went as usual to the restrooms to wash hands. As I understand it, she felt ill there in the restroom, slumping to the floor, possibly injuring her wrist at that time. She exhibited some very unusual signs of discomfort, agitation. I have never seen her so sick. So maybe now after hearing more about the condition I saw my daughter in that day on May 7th, you can understand my concern for her health. She obviously had more going on that day that we previously thought. I had to carry her to the car, she couldn't walk, but once she got away from the school and as time passed she seemed to feel a little better. She had a severe headache after the visit to the ER, wanted to go to sleep when we got home, although I wouldn't let her until I felt she was better. She did not go to school the next day. Blood and urine samples taken on the day of the May 7th incident involving my daughter are now to be analyzed by a toxicologist upon the recommendation of our pediatrician. A phenol exposure was detected on the blood and urine test conducted that day. My daughter also insists she smelled a "chemical smell" earlier that day. She recognized it as the same smell she had smelled earlier on the playground when the chemical spill was first detected in 2006."*

ELMCO has provided the following information concerning the May 6th and 7th incidents which were reported by Mr. Scott Martin and Ms. Elizabeth Coker:

- "1. The following chronology of events associated with the removal of the tanks from the tank farm at the ELMCO facility show that there was nothing going on**

relative to those efforts that could have caused the sort of significant emissions that could have caused the health problems described by Mr. Martin or Ms. Coker:

- a. April 25, 2008 - ELMCO contractor Ops Contracting Services LLC ("OCS") completed the decontamination of the last of the storage tanks at the ELMCO tank farm. OCS used its vacuum truck to remove solvent residues, solids, and decontamination water from the remaining two tanks (the northernmost tanks) in the Tank Farm. By this time, all of the tanks had been emptied and the tanks and aboveground piping had been decontaminated by flushing with water so that they could be cut up and recycled as scrap metal, and many of the tanks had already been cut up and shipped to a metal recycler.
- b. April 29, 2008 - At the ELMCO loading dock, OCS transferred the decontamination fluids from the vacuum truck into drums which were then securely closed for storage and later transport.
- c. May 1, 2008 - OCS completed cutting up the last of the storage tanks from the tank farm, placing the scrap metal in a roll-off box destined for the off-site metal recycler.
- d. May 5, 2008 - OCS cuts up old, empty, long-unused steel tank at west end of ELMCO main building and adds steel to scrap metal box.
- e. May 7, 2008 - Last rolloff-box of scrap metal from tank demolition is transported off-site to metal recycler.

2. In addition, TriAD's Chris Scott and Dwight Hinch were actually at Liberty Creek and the Harpeth River on the afternoon of May 7 (from approximately 1:00 PM to approximately 3:15 PM) to perform the monthly seep sampling, collect some measurements of the soil pile, and generally check out the creek, trench, and seeps. We have photographs which document this site visit. We were joined by OCS's Stuart Eiland and ELMCO's Kerry Mattox from approximately 2:15 PM to 3:15 PM. During this site visit, we inspected the seeps and trench and observed no free-product solvent discharges. We also physically collected water samples from the Main Seep, Watergate, and LC-PC locations on Liberty Creek and from the HR-2 location on the Harpeth River. These inspection/sampling efforts included walking the stretch from the Trench area to the HR-2 location (behind Scott Martin's house). We also checked out the Harpeth River HR-3 seep location and briefly looked at the HR-1 seep location. Further, we happened to have with us that day (because of the soil sampling work that was beginning the next day at the ELMCO tank farm) an Organic Vapor Meter ("OVM") which we used to measure and record organic vapor levels. Our field notes show nothing unusual that day. It was sunny and about 80 degrees, although there had been some rain early that morning and Liberty Creek was flowing but not nearly at flood conditions. At the LC-PC sampling location, the maximum OVM readings were 0.0 ppm both on top of the

then-new culvert crossing and at waist level in the creek. At the LC-MS sampling location, the maximum OVM readings were 1.9 ppm at waist level and 324 ppm (but widely varying) at the water surface. At the Watergate sampling location, the maximum OVM readings were 0.0 ppm at waist level and 24.3 ppm (but widely varying) at the water surface. At the HR-2 sampling location, where we found the river water level to be up to within about 1 foot below the seep, the maximum OVM readings were 0.0 ppm at waist level about 10 feet away from the seep at the edge of the river and downwind and 564 ppm at the water level. At the HR-3 sampling location, there was no discernible seep and the OVM reading at the water surface was 0.0 ppm. In addition to this field data that showed nothing unusual that day, the analytical results from the water samples collected showed nothing unusual.

During this May 7 field trip, we also visited the ELMCO plant to observe the now-former tank farm and the two rolloff boxes of demolition debris and again noted nothing unusual. In summary, we observed nothing that afternoon that could have caused the sort of significant emissions that could have caused the health problems described by Mr. Martin or Ms. Coker.

3. As I reported in my May 9, 2008 e-mail to Joe Sanders, we cannot imagine how the ELMCO solvent release could have been the source of such acute exposure effects as Mr. Martin described members of his family experienced on May 6th. The same goes for the acute exposure effects that Ms. Coker described her daughter experiencing on May 7th. We had not observed any discernible free-product discharge at the seeps or trench for months. Toluene has always been our primary constituent of concern for air emissions, and the symptoms described do not seem to be characteristic of toluene. Acetone is much less toxic than toluene, and there is no way that there is enough benzene associated with the ELMCO discharge to create such an acute vapor effect. I have attached to this e-mail the same medical effects information on toluene, acetone, and benzene (downloaded from an EPA-supported website) that I sent to Mr. Sanders on May 9. Again, my reading of this information indicates that much higher vapor concentrations than the Martin family members and Coker child could feasibly have been exposed to from the ELMCO release would have to have been present to cause the reported symptoms.

4. Finally, as I described in my May 9, 2008, and May 21, 2008, e-mails to Joe Sanders, we have collected weekly air monitoring data from the passive air monitors that have been deployed at a location behind the Martin house since April 21, 2008, that do not show the sort of air concentrations of toluene, acetone, or benzene necessary to have caused the acute exposure symptoms that Mr. Martin described his family members suffering on May 6. Similarly, we have collected weekly air monitoring data from passive air monitors deployed at 4 locations around the Liberty Creek Main Seep location since April 21, 2008, (including two locations between the creek and the BGA school property) that also do not show the sort of air concentrations of toluene, acetone, or benzene necessary to have caused the acute exposure symptoms that Ms. Coker described her daughter suffering on May 7. This includes data for the week of May 5 to May 12, 2008, which includes these two dates. This data has been reported to TDEC in two interim reports submitted by

EnSafe on June 23, 2008, and September 12, 2008. As I noted in my e-mails to Mr. Sanders, we acknowledge that the monitoring procedure collects the mass of airborne contaminant to which the monitor is exposed to over the 7-day period and converts that to an average 7-day concentration, and that we thus cannot say with this data that it is impossible for there to have been a short-term spike of toluene concentrations in air or even one of acetone or benzene. However, we believe it highly unlikely that such a spike would occur, and especially at concentrations that would cause the sort of acute exposure problems described by Mr. Martin and Ms. Coker. When one considers the close similarity of the data from the week of May 5 to May 12 to that from all of the other weeks, it seems even more unlikely that an unusual spike occurred during that week.

In summary, while we regret that the family members of Mr. Martin and Ms. Coker experienced the health problems reported, we see absolutely no reason to blame these problems on ELMCO and several reasons not to do so. We are aware of no mechanisms that could have caused the sort of unusual spike in airborne concentrations of ELMCO contaminants at these locations on these dates, and our observations and data indicate that no such unusual spikes occurred."

According to the Tennessee Department of Health, phenolic compounds can be derivatives of the degradation of other organic compounds. It is important to note, the phenol and phenolic compounds have not been detected at or associated with this site. Toluene must be tested in exhaled air or blood within 12 hours of an exposure. It can be exhaled unchanged. Absorbed toluene is excreted in the urine as several metabolites - hippuric acid, benzoyl glucuronide, ortho- and para-cresol and their sulfate and glucuronide conjugates, S-benzyl mercapturic acid, and S-p-toluyyl mercapturic acid. A reference range for phenol is less than 10 mg/L (Clinical Guide to Laboratory Tests, Third Edition, edited by Norbert W. Tietz). Without seeing the laboratory results and methods, TDEC cannot speculate as to the presence of phenol in the urine and blood sample. From the levels of toluene that have been reported, there would be no adverse health effects.

103. Although it may appear true that BGA is addressing this situation as best as they know how to do, I have recently become aware that the air quality monitoring tests for at least one reporting period was above the legal limit allowed for the presence of these chemicals in our school's environment. This information I obtained from a direct conversation with Greg Booth of Environmental Health Services of Hendersonville, Tennessee, the company previously hired to test the air.

TDEC also contacted Mr. Booth on September 23, 2008 to investigate any regulatory action level exceedances and based on our conversation with him, we feel there must have been some misunderstanding. According to Mr. Booth, all results were below the method detection limits with the exception of one toluene hit, which was below the reference criteria.

104. We now have more information from the media that indicated a 6500 gallon underground

storage tank may also be the source of contamination and this time the chemicals are Benzene and other chemicals previously identified that had no clear source for this contamination.

There is currently an 8,500 gallon tank onsite that was previous used for fuel oil storage. The related tank documentation may be found in the TDEC files. The tank was used for the storage of fuel oil from 1986 to 1995. In 1995 the use of the tank for fuel oil storage was discontinued. In October 1997 the tank was permanently closed out via proper documentation that maybe found within the TDEC files. In 1997 the tank was cleaned and the waste materials were properly disposed in accordance with applicable regulations. Since that time the tank has been used for the storage of cooling water.

105. How does TDEC plan on protecting the public during this remediation process?

TDEC will insure that ELMCO is continuing to monitor ambient air quality and impact to the receptors. In January, 2008, TDEC approved ELMCO's workplan that provided for the collection of time-integrated air samples during four consecutive weeks, starting in January, with an additional week of sampling to follow in April, July and October, 2008. However, due to difficulties in obtaining permission to access some of the proposed sampling locations, implementation of the work plan was delayed until April. At TDEC's request, benzene was added to the list of volatile organic compounds for which samples were to be analyzed. The results of the sampling data to date do not indicate that the ambient concentrations of volatile organic compounds that have been detected would pose a threat to area residents or to the students or staff of BGA Lower School. The public can also review all of ELMCO's Seep and Groundwater Monitoring Reports on TDEC's website.

106. You have the obligation to provide a clear plan that protects the community while this company remains in business and cleans up this spill. So far, I have seen no such satisfactory plan that includes measures which guarantee the level of protection the public and especially our children, deserve.

ELMCO has worked with both TDEC and BGA to establish air monitoring stations and detections systems.

107. This company has a record of violations not only in our state but also in the state of Indiana. I have forwarded information to Ms. Holt regarding these violations and sent her the project manager's name and phone number there as a contact to further investigate these findings. We are very interested in any potential exposures, as have been reported by Ms. Coker and Mr. Martin.

If exposures are verified, TDEC will proceed forward to incorporate various other protections as deemed appropriate.

108. In Indiana, ELMCO is guilty of poor, if any, record keeping, safety violations and toxic emissions. It is my opinion that this company has made a practice of committing the same violations from state to state without regard for the law and that may be a disturbing pattern TDEC needs to look in to I would also like to know what happened to the plants that once operated in the state of New York and New Jersey as I cannot find records going back that far. The company needs to disclose its history of relocating and the reasons why it has moved from state to state I also find it interesting that the company is listed as an active Foreign Business Corporation in the state of New York, with representation on 5th Avenue in New York City. This and the relationship with the Indiana plant is contrary to the way the company presented itself to TDEC and the Mayor of the City of Franklin at the recent public hearing. The company said it was "a small (local) American company with twelve employees and was a part of the community, too". Then how is it that they retain the legal responsibility for the clean up at the 555 Sagamore Parkway facility in Lafayette, Indiana, even after the company was sold to Worwag Coatings, of Stuttgart Germany? This possibly false public perception of this company was created to gain sympathy for this company. No one still has convinced me that the EMI/RFI water based spray process known as Thermadep they are currently manufacturing and selling is any safer than the old lacquer process. These process improvements and the applicable improvements to the safety of the various processes can best be addressed by the ELMCO staff. ELMCO's own web site says that it is technology with low or no VOC's. How low? If they don't keep records on hazardous materials that they are federally required to turn in annually, how do you expect me to believe that this is a better process.

These comments do not pertain to the Revised Corrective Action Plan, and cannot be addressed in TDEC's Response to Comments.

109. Where is the oversight and regulation of these companies reporting? So who is supposed to keep up with their Tier Two reports?

In Tennessee, facilities covered by Emergency Planning and Community Right-to-Know Act (EPCRA) requirements must submit an Emergency and Hazardous Chemical Inventory Form to the Tennessee Emergency Response Council, and the local fire department annually.

110. According to the copies I received from Andy King, Fire Marshall with the Franklin Fire Department, he received 2003, 2004, 2005, 2006 Tier 2 reports all on the same date February 11, 2008. Five years of reports were late?!? The same information for only 2003 was on file with Mike Thompson of Williamson County's Emergency Management Agency. Neither agency had any report, to my knowledge for 2007. Once again, ELMCO has boondoggled another city and another state's environmental agency with a lack of reporting hazardous materials just like what happened in Indiana. This time, it is the state of Tennessee. Isn't this in violation with the public's RIGHT TO KNOW what is going on next door to our elementary school and neighborhood?

These comments do not pertain to the Revised Corrective Action Plan and cannot be

addressed in TDEC's Response to Comments.

111. The City of Franklin received complaints of foul odors, smells, and health issues in the form of a petition 1995 by resident David Goins. Goins is now deceased but his daughter, Denise Danley spoke at the hearing. Yet upon my further investigation the City has only the record that was turned in the night of the public hearing from the former Building Codes inspector where he noted accepting the petition and complaints and turned the documents over to his supervisor. A record of this petition that should have been found in the files of the supervisor, Guy Cardin now deceased, according to the City, have not been found, yet at the public hearing, one of the older residents, Mr. Cartwright, remembered signing such a petition and said so that night on August 7, 2008 at the hearing. Why hasn't there been any acknowledgement that the residents of Daniels Drive have tried to get the City's attention to this problem for years?

These comments do not pertain to the Revised Corrective Action Plan and cannot be addressed in TDEC's Response to Comments.

112. If there was a reporting period that did indeed show that levels of these chemicals exceeded the legal limit when Environmental Health Services of Hendersonville tested the air of the BGA facility, then as a parent I believe they should have gone to the next step of air quality monitoring. The passive badge method of sampling is a far more accurate way of assessing the current risk to our children's health in relationship to these specific chemicals. We, the parents, will proceed to insist on that method of sampling, if determined necessary.

BGA currently has an air monitoring system in place to monitor indoor and ambient air. This system that was recommended by their own environmental experts and is believed to be protective of both students and faculty. Any modifications to this system would have to be approved by BGA.

113. What I see as a layperson, is that a source of the chemical spill has been identified, but that the parameters of how widespread the leak has affected our environment has not been clearly identified.

TDEC concurs that additional investigation should be required.

114. So we have a source, and a uncertain pathway, and we also have some receptors who have been reported to you but not properly investigated by city, state or federal health agencies. I refer to the fact that no one has interviewed those individuals who have claimed to have been directly affected, namely the residents of Daniels Drive and the students, faculty and staff of Battleground Academy Lower School, or anyone else in the immediate downtown Franklin area. At this point we still have not verified exposures at either the BGA school, playground or to the residents on Daniels Drive.

See TDEC's response to comments #102, #112 and #115. The site activities known to be occurring on May 6th and 7th would not lead one to suspect that the ELMCO

facility was the source of an exposure on these dates in May 2008.

115. I called the local Health department of Williamson County and expressed my concerns to the director, just recently and let her know that I plan on following up with Dr. Bonnie Bashor, Tennessee Department of Health (TDH) at a later date to inquire as to why no interviews were set up with individuals with health concerns related to this spill and why no official public health assessment has been made. At least six individuals have been identified as possibly having been exposed and exhibiting the affects of exposure. Two students have now graduated onto the Middle school and are no longer at the Lower School, two teachers who are no longer with the school, one staff member who retired last year and my daughter shoe is currently in fourth grade. It is unusual and rare to have an elementary school in the pathway of a chemical spill where no on investigates further the health concerns of affected individuals, even after a public hearing and information reaches the state that there was the potential need for such further investigation. I call for a Public Health Assessment by either ASTDR or whatever appropriate health agency can be recommended by EPA as part of the CAP. It should be one that is independent of the company, the school, and the state, for I lack confidence in any of the aforementioned to adequately address the complexity of this situation.

TDH and ATSDR only perform exposure investigations if there is a known, completed exposure pathway to levels of chemicals above health comparison values. In this case, we have a known, completed exposure route (inhalation of ambient air), but we do not have an exposure to levels above comparison values. Although TDEC does not believe that further investigation by the TDH is warranted, TDEC has requested that the TDH conduct a health consultation where TDH will review the data, and give their conclusions and recommendations in an ATSDR-certified document.

116. TDEC received the following comments from ELMCO regarding the CAP:

When ELMCO entered into the Consent Order in June 2007, both the company and the Department were optimistic that a solution to the problem could be identified relatively quickly. After considerable geologic evaluation and investigation of actual site conditions over a 16 month period, we believe it is premature to propose a final remedy. Nevertheless, ELMCO made efforts to comply with our mutual understanding of the requirements of the Order related to the CAP. ELMCO worked under close oversight by the Department to accelerate the preparation of a CAP. While we continue to believe that the likely final remedy will be source removal combined with natural attenuation, we believe the better regulatory approach is to complete all necessary interim corrective action steps and investigative measures prior to recommending a final remedy.

The requirements of the CAP should be redefined to include those interim corrective action measures necessary to eliminate the source and to perform needed additional investigations before ELMCO proposes a final remedy. Each action will be accompanied by an aggressive schedule of compliance. At the conclusion of all agreed upon steps, ELMCO and the Department will meet, if necessary or requested, to determine any additional steps necessary before proposing a final remedy. As any plan will be based upon risk based corrective action requirements, at the conclusion of the interim action steps ELMCO will

provide a final risk assessment to supplement the one prepared for ELMCO that accompanied the Revised CAP. Following the risk assessment and the Department's approval thereof, ELMCO will be in a position to propose the final remedy within the time period agreed upon under the plan.

The following are the interim corrective measures that we believe are necessary before proposing a final remedy include:

- 1) Complete the removal of the solvent source in soils near the former tank farm at ELMCO's facility.
- 2) Perform interceptor trench cleanout and intensive trench pumping to determine whether additional free product can be recovered from the trench.
- 3) Obtain additional data to allow further evaluation of potential vapor intrusion risk along Daniels Drive.
- 4) Determine whether additional air, surface water, soil, or groundwater data are needed to complete the risk assessment, then collect such data.
- 5) Establish the most appropriate exposure scenarios to be used in the risk assessment.

We believe that this proposed phased regulatory approach is consistent with EPA and Department guidance and will assist both ELMCO and the Department in addressing the most accelerated means to a final remedy.

TDEC generally agrees. Please see the Status Report – November 2008.